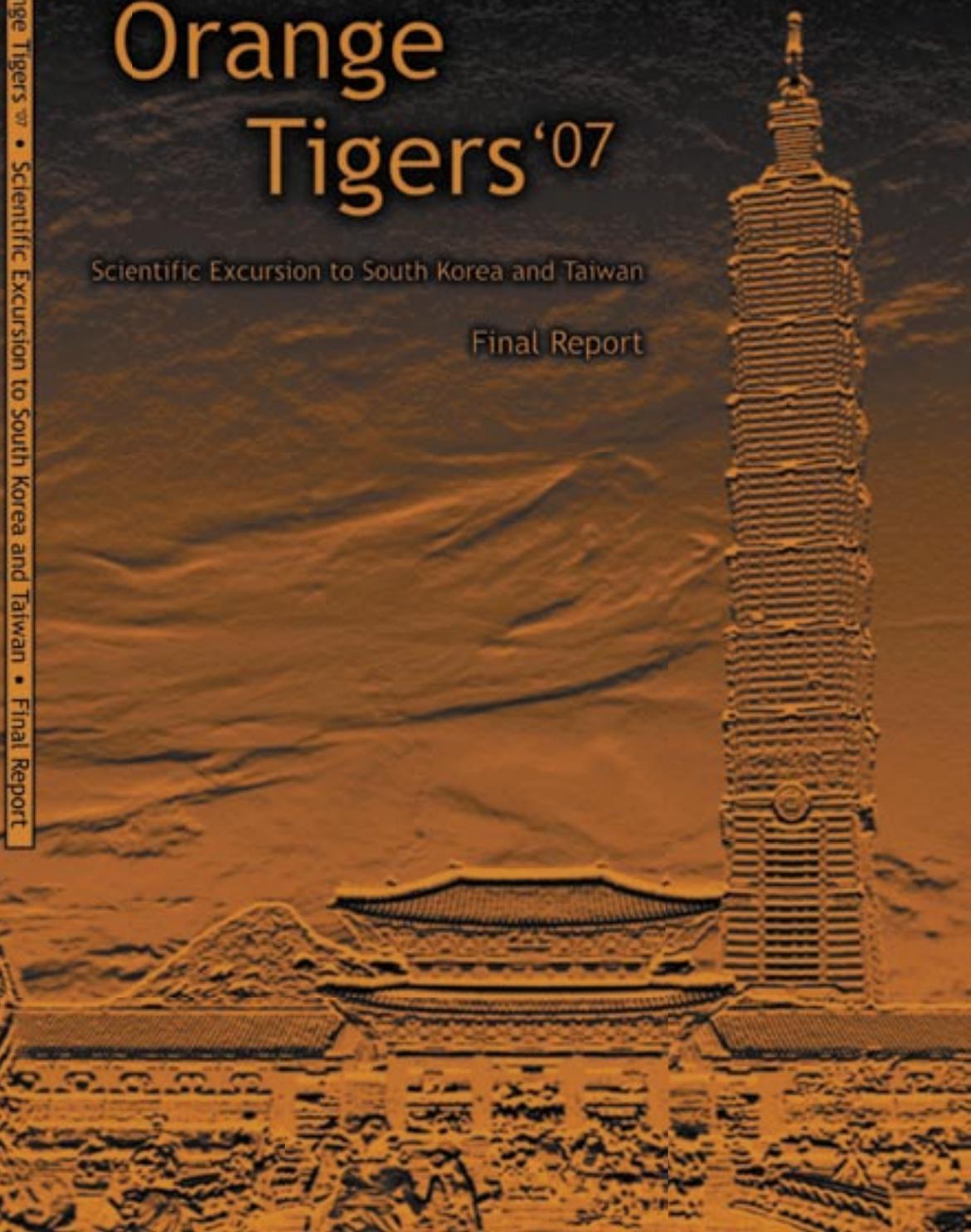


# Orange Tigers '07

Scientific Excursion to South Korea and Taiwan

Final Report

Orange Tigers '07 • Scientific Excursion to South Korea and Taiwan • Final Report



# Colophon

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This is a publication of the Foundation Grote Buitenlandse Excursie(s) - Fysisch- Mathematische Faculteitsvereniging (Foundation GBE-FMF), best to be translated as Foundation for International Student Excursions. The foundation is founded by the Fysisch- Mathematische Faculteitsvereniging (FMF), the organization for students in Computer Science, (Applied) Mathematics, (Applied) Physics, Biomedical Technology and Astronomy of the University of Groningen.

Its goal is to organize intercontinental study tours for students of the FMF every two years. The foundation consists of a board and a committee. The board acts as a supervisor while the committee is involved in the actual organization.

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# Final Report



Scientific excursion to South Korea and Taiwan

# Preface

Orange Tigers '07, a study tour to South Korea and Taiwan, was a once in a lifetime experience. After more than a year of preparation we left at April 14th from our hometown Groningen towards Taiwan. Till May 9th we gained inside in both countries' culture and science, which was a great experience. Now a few months after the tour the committee Orange Tigers '07 is very proud to present this final report.

The study tour was organised by the committee Orange Tigers '07, part of the foundation Grote Buitenlandse Excursie(s) Fysisch- Mathematische Faculteitsvereniging (GBE-FMF). The Foundation GBE-FMF is tightly linked to the Fysisch-Mathematische Faculteitsvereniging (FMF). The FMF is a student association for students in Computer Science, (Applied) Mathematics, (Applied) Physics, Biomedical Technology and Astronomy at the University of Groningen. Beside lots of activities that contribute to the students' scientific education, the association also organizes all kinds of social activities.

The foundation's objective is to organize a three-week study tour, with both scientific and cultural aspects, to a destination outside of Europe for members of the FMF. In the past years, the foundation organized study tours to China and Malaysia in 2005, Mexico and the United States of America in 2003 and Japan in 2001.

The main source of funding for Orange Tigers '07 were the case studies. A case study is a research assignment for a company or institution, performed by participating students. Reports of the case studies can be found in this report.

This report will of course introduce the participants of the tour; twenty students, two members of the scientific staff and five committee members. However, the main part of the report is reserved for daily reports, in which the participants talk about the official and nonofficial activities done during the tour. On the scientific days several universities, institutes and companies were visited. The cultural days varied from sight-seeing in Taipei and Seoul, visiting the border with North Korea and hiking in a national park to swimming in an inland river. Organizing all these activities needed a lot of preparation and was quite a job. However we fulfilled this duty with lots of joy.

After the daily reports the experiences from the two members of the scientific staff Mr. Reinhard Morgenstern and Mr. Kurt Lust the board of the Foundation GBE-FMF, and the personal experience on organizing Orange Tigers '07 from the members of the committee can be found. The report will conclude with some words of gratitude, to all people who made Orange Tigers '07 to a fantastic study tour.

I hope you will enjoy reading this final report.

"Het was vet gaaf!"

*Margriet van der Wal* Chairman Orange Tigers '07



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# Case Reports



The most important source of funding for the GBE-FMF study tours comes from case studies. Apart from subsidies and the participants' contributions, every participant has to do a case study. A case study is a project for a company or institute. The participants spent three weeks working on such a project, and by doing so they earn money for the foundation.

The organizing committee selects the most competent participants for each assignment. Since they have an academic training, the students can apply the knowledge of their particular field of expertise to practical situations or problems. During the case study, they are at all times supervised by a member of the scientific staff of the university, who can advise the students on problems they encounter. The staff member also makes sure the students meet the quality demands put forward by the company or institute. A case study is a good opportunity for a student to come in close contact with companies that are potential employers, and it gives the companies the chance to introduce themselves to the students. Besides that, companies can get work done for which they lack expertise or time, at a cost that is far below the industry standard. The students have access to university equipment, literature and expertise to best help them fulfill their assignment.

For Orange Tigers '07, case studies were performed for nine different companies and institutes:

- Thales
- Universiteitsbibliotheek
- UOCG
- WL Delft
- Deloitte
- Microsoft
- RSP Products
- Hi-light
- NAM





## Case Thales Nederland

Thales is a global defence contractor employing 61,000 people in 50 locations around the world with sales in excess of 10 billion euros a year. Thales Netherlands is a subsidiary of Thales and a market leader in military communications and radar technology. Located in Hengelo, Thales Naval Netherlands is the largest defence company in The Netherlands and concentrates on naval systems such as command and control, communications and radar technology. Examples of products manufactured at Thales Hengelo are the multi function radar APAR and the naval self defence system goal keeper. Thales employs about 2,000 people in the Netherlands. Next to naval systems activities in The Netherlands include communications, optronics, munitronics, cryogenics and security.

### The assignment

*Ruben van der Hulst and Gijs Noorlander*

For the Thales Naval Netherlands, Concept Development & Experimentation laboratory, we were asked to investigate several techniques used in VoIP (Voice-over-IP, or in other words telephony over the internet). One of the problems in traditionally telephony is the existence of a central server and the centralized management of the used telephone numbers. This design makes maintenance a lot easier, but it also introduces a single point of failure. If such a telephone exchange station is shutdown, no communication is possible. One way to overcome this problem is to list all telephone-extensions on all local exchanges, so people can still reach each other, even when a part of the network is shutdown. However this imposes a lot of maintenance when extensions would be added or changed. This problem can be handled by a protocol called DUNDI (Distributed Universal Number Discovery). In short, it is like asking your neighboring peer whether he knows how to reach a certain phone-extension or VoIP client. Some sort of peer-to-peer phonebook. We also described, and tested, a lot of other techniques involved with VoIP and Asterisk, an open-source implementation of a PBX (Private Branch eXchange – a telephone-exchange)

*Fabio Bracci and Anneke Praagman*

Besides the task above there are problems with communications between systems that use different protocols. A widely used protocol is SIP which is used in many popular VoIP services; another protocol is H.323. Our task was to find out how to manage clients each using one of these two protocols from a VoIP software telephone exchange. The H.323 standard is part of the H.32x family of real-time communication protocols developed under the auspices of the ITU-T (International Telecommunication Union - Telecommunication Standardization Sector). Each protocol in the family addresses a different underlying network architecture e.g. a circuit switched network, B-ISDN, LAN with QoS, and LAN without QoS (H.323). H.323 is not an individual protocol but rather a complete, vertically-integrated suite of protocols that defines every component of a conferencing network: terminals, gateways, gatekeepers, MCUs and other feature servers. This is all in contrast to the Session Initiation Protocol (SIP), a simple protocol from the Internet Engineering Task Force (IETF), that specifies only what it needs to. SIP does not know about the details of a session, it just initiates, terminates and modifies sessions. SIP is a request-response protocol that closely resembles two other Internet protocols, HTTP and SMTP. Using SIP, telephony becomes another web application and integrates easily into other Internet services. In addition to this we had to implement a connection of such a software telephone exchange to the regular telephone network. Another problem is the manageability of the software exchange. E.g. how to handle upgrades while keeping the same telephone network configuration.

# YOU'D BE SURPRISED ABOUT YOUR FIRST JOB

Interesse in een stevig carrièrepad in de techniek? Op zoek naar carrièrekansen op het gebied van communicatie- en security-technologie? Dan zal Thales Nederland je verbaasd doen staan.

## ABOUT US

Actief in de sectoren Aerospace, Defense en Security is Thales Nederland met 2.000 medewerkers dé aanbieder van hightech-banen. Productinnovatie en snel inspelen op de nieuwste technologische mogelijkheden zijn onze drijfveren. Spraakmakende voorbeelden daarvan zijn radar-, communicatie- en command & controlsystemen voor marineschepen en communicatie-, beveiligings- en betaalsystemen voor het bedrijfsleven. Thales Nederland is onderdeel van de Thales Group met 70.000 medewerkers in ruim 50 landen en is daarmee een van Europa's grootste elektronica-bedrijven.

## YOUR FIRST JOB

# ENGINEER

### About you

Je rondt je studie Wiskunde of Natuurkunde af. Je bent een creatief denker die ook graag interdisciplinair samenwerkt met collega's in binnen en buitenland. Je wil je op opgedane kennis berutten en tegelijkertijd de vrijheid hebben diep in leading edge techniek te duiken. Je bent graag betrokken bij de hele productieketen van concept tot ontwerp en van assemblage tot de laatste testen.

### About your career

Wil je je als startende wiskundige of natuurkundige verder ontwikkelen in hightech, dan kun je bij Thales je hart ophalen. Bijvoorbeeld om als Radar Engineer te werken aan een nieuwe rondzoekradar. Het radarsignaal verwerken tot bruikbare informatie in de algoritme-keten binnen het processing cabinet.

### Surprised?

Thales komt graag in contact met jou om samen jouw mogelijkheden te bekijken en je carrièrepad uit te stippelen. Ook vind je bij ons uitdagende stage- en afstudeerplaatsen.

Mail ons op [jobs@nl.thalesgroup.com](mailto:jobs@nl.thalesgroup.com) of bel 074 - 248 37 33.

# THALES

Work is smarter at Thales



## Case UB

*Stefan Postema*

My case study was for the Library of the university (UB). They would like to have a implementation of the SRU/SRW protocol. This protocol is a standard for transferring information from the so called repositories to the outside world. SRU stands for Search and Retrieve via URL and SRW stands for Search and Retrieve Webservice(s). These repositories contain data that not only the university collects (books, etc) but also for instance a museum, with it's collection. Then via the web you can use a standard protocol to retrieve the data and implement your own way how you would like it to be presented.

As the definition says, you perform a search via the URL you are using and you'll get a response from the server in XML. This response is according to a certain syntax.

The UB already uses something like SRU/SRW that is called Open Archives Initiative (OAI). But if SRU/SRW is implemented completely, it is much more powerful than OAI.

The search query isn't passed on via normal SQL syntax but via CQL, Common Query Language. It is much more readable and easier to understand by humans. The disadvantage is that you would have to build an interpreter to map the CQL commands onto your own database (e.g. MySQL). That is mostly the hardest part. But SRU/SRW is becoming more popular and more libraries support this service. Maybe one day it will become a standard in retrieving data from libraries, that the CQL syntax will become standard in widely used database engines.

On the way, it was certain that the job was too big for one person to do in three weeks, but a beginning of the implementation was done and demonstrated that it worked. It didn't support the CQL but it did deliver the results in XML. The search was simulated using SQL queries.

## Case WL Delft Hydraulics

*Sietze van Buuren and Anisa Salomons*

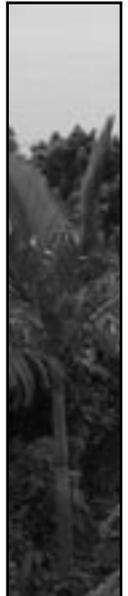
### **Two-phase air-water circuit**

WL Delft Hydraulics presently has two experimental set ups to research air bubbles in water transport systems. They plan to build a third two-phase air-water circuit, the characteristics of the equipment of this set up has as of yet to be determined.

The circuit will be used to extend the one-phase 'Wanda' software, that WL Delft Hydraulics have developed, to two-phases. This case study investigates which recent research has been done on air-water two-phase flow. In particular which flow regimes can be generated, under which circumstances and when flow regime transitions occur.

There are mainly three flow patterns: bubble flow, slug flow and stratified flow. Bubble flow consists of spherical air bubbles evenly dispersed in the water. Slugflow is characterized by one large air bubble, almost the size of the tube diameter, followed by a froth of smaller bubbles. Finally, stratified flow is characterized by the two phases flowing parallel to each other in the tube.

The division in three flow patterns is not widely accepted, there are many flow



patterns in between these three and there is not one standard to distinguish between the flow patterns. This field of study has due to its complex nature, long been dominated by empirical studies into these flow patterns. The different flow patterns were distinguished by human observations, lately it has been possible to measure the bubble size and to distinguish flow regimes in a more consistent manner.

The research on two-fluid models is still ongoing, since the seminal work of Taitel and Dukler in 1976. The research is shifting from experimental correlations between water velocity, air bubble velocity, tube diameter, pressure and the flow regime, to models and computational fluid dynamics models.

The report gives an overview of the most relevant recent articles on two-phase flow, focused on the pressure gradient and regime transitions. The two-phase flow is very complex and difficult to model. There is not one model that captures all aspects, but each model has its own range in which it performs best. As we are not experts in this field, we have not made a choice between the various models. The report gives an overview of the most important articles on the subject.

### Effectiveness of a pump without moving parts.

In the second part of the case the goal was to simulate a motionless water pump and determine its effectiveness.

Paul de Vries (paul.dvries@wxs.nl), an employee at Corus, came up with the idea to pump water (or another liquid) to a higher level using compression. With use of a siphon, this compression is built up by a part of the water which is diverted to a lower level. In the figure below one can find the schematic layout of the pump. This idea was brought to

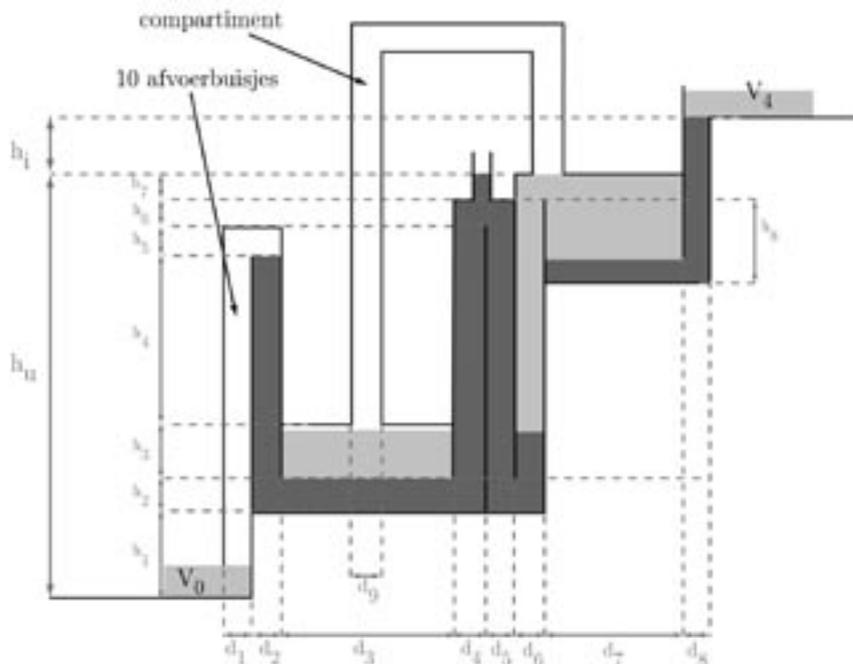


Fig 1: A schematic layout of the pump



## research and advice

WL | Delft Hydraulics is an international knowledge institute that has been conducting applied research for more than 75 years and provides specialist advice on water-related problems and issues.

We are looking for intelligent, talented and ambitious people who can contribute to the future of our institute. Working in a scientific environment you will develop solutions to national and international water-related problems and you will devise practically oriented applications.

You will conduct research and using this knowledge you have amassed, provide recommendations to government and commercial organisations alike. For us, advisory skills and empathy are therefore just as important as actual scientific knowledge.

## interested?

Do you have a vision and are you up to the challenge of working together with our specialists on innovative solutions to (international) water-related problems? For further information and open applications:

**working  
between  
science  
and  
practice**

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**wL | delft hydraulics**



WL|Delft. They thought it would be useful for educational purposes and are planning to make a demo model. For this, a study was needed in order to find the optimal parameters of the pump.

Because there was a limited amount of time for this part of the case (already two weeks were spent on a literature study of two-phase flow), a simple theoretical model was conceived. In this model, friction was not taken into account and due to the shortage of time robustness and physical correctness have not been looked into. However, still some preliminary studies on the effectiveness could be performed. For the parameters of the pump proposed by the inventor, the effectiveness turned out to be around 10 percent, which is about 25 percent lower than the originally expected effectiveness.

It is very likely that there is a more optimal set of parameters. Furthermore, friction will influence the effectiveness in a negative way, while inertia can influence the effectiveness in a positive way. Before constructing the demo model more research is needed. Friction as well as inertia have to be included in the model after which a extensive parameter study is to be performed.



## Case NAM

*Duurt Johan van der Hoek and Jan Smit*

The gas flow through pipelines in the North Sea is constantly monitored by NAM. In order to better understand and predict what is happening inside these pipelines the Lagosa model was designed. Using an Excel tool called the Disaster Recovery Tool, certain periods of time are simulated with Lagosa. Before starting the simulation it is necessary to generate a list of times where some events, the launches of so-called pigs (objects that clean the pipelines), have to be added manually. This is a time consuming exercise, if done manually, so an Excel Visual Basic application was designed to do this automatically.

Furthermore, it is interesting to compare simulation results with actual measurements. The remainder of the case was spent to give a nice presentation of this comparison. More VBA subroutines were designed to generate graphs and also to correct some measurement data. This last part was somewhat tricky. The 'pigs' causes large surges of fluids (called slugs) to arrive at the end of the pipeline in the so-called slug catcher. The out-flowing liquids are partially water and partially oil-like substances. Since this mixture has time to settle into layers and the draining is from below, water flows out first and then the oil-like substances. The continuous measurements done to determine the fluid level in the slug catcher, however, assume a uniform density and therefore give a wrong level indication. More VBA subroutines were used to present corrected fluid levels. The general solution was quite complicated, since quite a few anomalies in the data could occur and the program is supposed to handle all of these anomalies correctly. After this data correction a subroutine makes graphs that plots similar data in the same graph. This simplifies checking whether the Lagosa tool runs correctly and can help to upgrade the Lagosa model.

## Case RSP Technology

*Anna Dinkla*

RSP Technology is a Dutch company that produces aluminum alloys for the automotive-, and recently also optical industry. RSP produces the alloys through the process of rapid solidified, hence the name RSP. In this process, also called meltspinning, aluminum and additional alloying elements are molten at a temperature of about 850 degrees Celsius. In



this liquid phase the mixture hits a fast rotating copper wheel, which almost instantaneously releases a continuous metal ribbon at room temperature that will be chopped into flakes. After a couple more production steps (like compacting of the flakes and pressing to produce a billet), the billet is extruded into a profile.

For the production of the RSA-6061 T6 alloy, the profile will undergo a T6 heat treatment. This alloy can be made into high quality mirror surfaces with very low roughness of 1-5 nm (conventional AA6061 has a roughness Ra of 5-10 nm).

For optical applications like mirrors, a fine microstructure of the rapid solidified alloy is of great importance. However, since this alloy is produced only by RSP Technology, not much is known of its microstructure. Specific details of the microstructure, found with LM investigation might influence optical characteristics. The composition and shape of typical features must be determined. Having this information might bring forward a solution to improve the alloy. For this research, RSP has requested if a student could investigate the microstructure of this alloy. Therefore, analysis was performed using the light microscope (LM) and the scanning electron microscope (SEM). The latter gave us the opportunity to apply EDX (Energy Dispersive X-Ray) and OIM (Orientation Imaging Microscopy), two techniques that give information about the elements in a qualitative and quantitative way and about grain size and the distribution of existing phases.

In EDX analysis an electron beam strikes the surface of a conducting sample. This causes X-rays to be emitted from the point the material. The energy of the X-rays emitted depend on the material under examination, so a spectrum of the elements present can be created. Also, a topographical image of the distribution of the elements is made.

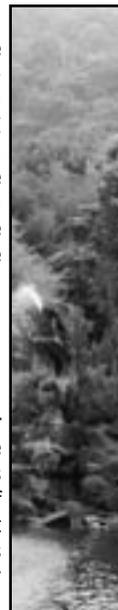
The other technique, OIM (Orientation Imaging Microscopy) is based on automatic indexing of electron backscatter diffraction patterns (EBSP). OIM provides a complete description of the crystallographic orientations in polycrystalline materials.

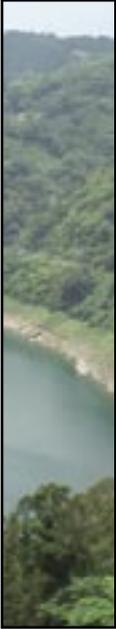
For good OIM patterns, we needed to try different methods of polishing the material. The best method turned out to be precision ion polishing (PIP). Unfortunately this was a time-consuming method. Since I had never worked with these microscopes before, it was quite a lot of work to do the analysis, but I think I learned a lot from it. I got the responsibility to do this project on my own and work with these machines. I hope I helped RSP Technology to get more insight in and to optimize their product. Finally, I would like to thank Gert ten Brink and prof. dr. De Hosson of the Material Science department for taking the time to teach me how to use the equipment, letting me use it and helping me throughout the project.

## Case Microsoft

*Leo van Kampenhout, Samuel Hoekman Turkesteen and Wicher Visser*

Microsoft is a worldwide computersoftware producer best known from their operating systems: MS-DOS and Windows. Microsoft also produces officesoftware such as MS Office. Microsoft also provides students, teachers and employees of universities and graduate schools an easy and not so expensive way of using their server and developmentsoftware. This service is called Microsoft Development Network Academic Alliance (MSDNAA). The software from this service is provided by a web-based management system called e-academy License Management System (ELMS).





The purpose of our case was to perform a market research to investigate the penetration of MSDNAA-products (like Windows) into the university and graduate market and to find out where improvement is possible. In this research we found several difficulties which will have to be overcome in order to increase the penetration of MSDNAA-products. To overcome these problems we formulated recommendations. We presented this results and recommendations at Microsoft Netherlands headquarters in Schiphol-Rijk.

We made contact with 25 universities and graduate schools and we interviewed them with questions involving the implementation and the global use of ELMS. If any technical difficulty arose, we offered them a helping hand.

Only 44 percent of the questioned institutes indicated to be content with the use of MSDNAA/ELMS, four percent was unsatisfied and the latter 52 percent was conditional content.

One of the biggest problems was the setup- and maintenancedocumentation (38 %). The existing documentation was too extensive or too classified to use. We suggest to supply institutes with more simple documentation published on some kind of website. Another problem was the system management department at institutes (32 %). System managers are another target then students. System managers need to be motivated in order to implement ELMS. A big issue is always financial (15 %) however this is more a problem for Microsoft then it is for the institute. Payments of MSDNAA/ELMS subscriptions are always done by a financial administration, apart from the educational administration which has the subscription. In most cases, payment is done later than contractual

agreed upon. We suggested some form of automatic renewal of contracts. In our research we found that the database Microsoft is using is not very reliable. Data was not up-to-date and the database was inconsistent. We suggested to check institutes on a yearly basis and to use one protocol (for example by using a webform) to fill in the database.

One not so enjoyable thing about the case was that the case was not very bounded. On the other hand, it was a quite different case, since we are science students and this is more in the marketing/economics field. We learned a couple of things about performing a realtime market research and formulating clear targets.

## Case Hi-Light

*Pim Lubberdink*

In nuclear physics, signal analysis mainly involves analyzing pulses. This is in contrast to, for example, telecommunication, where the main focus is on periodic signals. Although the latter has greatly gained from the emergence of digitizers, the analyzing methods for digital signals used in nuclear physics are very often literal copies of their analog predecessors, which do often not fully use the possibilities of digitization.

A specific problem where the current state of the art for digital pulse analysis can be dramatically improved is the problem of determining the arrival time of pulses. This report will describe the results of a case study on timing of digitized pulses, performed for Hi-Light Opto Electronics in cooperation with the KVI.

One of the practical applications where timing of digitized pulses plays a crucial role is in the Positron Emission Tomography (PET) scanner used in hospitals to create 3D images of patients. Although the results of the research aren't limited to the PET scan, this application can be used as a good illustration.





To make a PET scan, the patient gets an injection of a radioactive isotope which decays by positron emission (beta decay). The radioactive isotope is incorporated in a metabolically active molecule (glucose or water for example), so that it will form concentrations in the region of interest. When a positron is emitted, it will almost immediately annihilate with an electron, creating a photon pair (emitted at the same instant). Since the positron and electron are at rest during annihilation, conservation of momentum requires that the two photons travel in exact opposite directions (180 degrees). These photon pairs can be detected by a combination of a scintillator crystal and a photomultiplier (PMT). A PET scanner consists of a lot of these scintillator / PMT combinations, surrounding the patient.

Current PET scanners have a time resolution of about 20 ns (6 meters) for each coincidence measurement. Since the resolution is so large, this means that for a given coincidence event, the PET can only distinguish on which line (connecting two PMTs) the source of radiation is. By using intersections of these lines from different coincidence events, a 3D image can be generated. The time resolution in this case requires that the patient gets a fairly large amount of the radioactive tracer molecule and has to lay still in the scanner for about an hour.

With smaller time resolutions, one can use the time difference between the two photons created by the annihilation of the positron to determine where on the line connecting two PMTs the pair production took place. This technique is known as time of flight. By improving the time resolution of the timing of digitized pulses created by the scintillator PMT combination, time of flight calculations can be done. Improving the time resolution will reduce the amount of tracer necessary and will decrease the time the patient has to be in the scanner to a few minutes, clearly improving the comfort for the patient.

Although the concept of time of flight has been around for a while, currently only one commercial PET scanner (Philips Gemini TF) has actually a good enough time resolution to be able to use this idea. However, most of the research is currently concentrated on improving the scintillator crystals. This is also the case for the Gemini TF. To improve timing of digitized pulses, we use a different approach, concentrating on fast digitizing and numerical methods. With our approach we can reach time resolutions as small as 300 ps (9 cm), with a sub-optimal PMT / scintillator crystal combination. Obviously a great improvement as compared to the 6 meters resolution of conventional PET scanners. We believe we can get even better resolutions when applying our methods to crystals and PMTs which are used in the medical industry today.



## Case study Deloitte I

*Natasja Sterenberg and Else Starckenburg*

Deloitte is an independent 'member firm' of the international Deloitte Touche Tohmatsu Verein. With approximately 6,000 employees and holdings spread across the Netherlands, Deloitte is the largest organization in The Netherlands in the field of accountancy, tax advisement, consultancy and financial advisement. Deloitte also has a department responsible for the development of financial models. Our case study originates from this more math oriented department.

The purpose of our case was to program a Heston model in C#, to determine the price of an option. An option is the right to buy or sell a certain good against



a pre-determined price, within a prior agreed period. In our case these goods were shares. To obtain the right to sell or buy a share for a certain price, the buyer pays a certain amount of money. The price of an option is a compensation for the financial risk the seller is subjected to, but on the other hand it has to be sufficiently low to interest buyers. A fair price is thus a balanced one, depending on the price the underlying share could adopt.

The already existing framework of our assignment at Deloitte, was a Black-Scholes Monte Carlo model. This model is based on the Black and Scholes option valuation formula, which gives an analytical approach of the option price. Using the Monte Carlo simulation, a large number of different paths are simulated for the different prices of the underlying share. Eventually the mean of these paths is used. In the Black-Scholes approach the standard deviation in the price change of the share, the volatility, is considered constant. However, from the share market it can be seen that this assumption proves to be incorrect. Our assignment was therefore to extend the existing model to a model in which the volatility of the share is also stochastically modeled, in other words to create a "Heston model".

For the implementation of our case, we had to learn a lot about the financial world and its underlying math. This was accompanied by a great share of programming. One enjoyable aspect of our case was the fact that we had a clearly bounded assignment. However, during this assignment we encountered some technical and non-technical obstacles. This varied from correctly reading in input values, to deciding upon the right formulas for the calibration of the model. All this made our case a challenging one, from which we learned a lot. In combination with pleasurable supervision from Deloitte, it all eventually led to a, for Deloitte, usable final product.

## Case Deloitte II

*Bernadette Kruijver and Thijs Hollink*

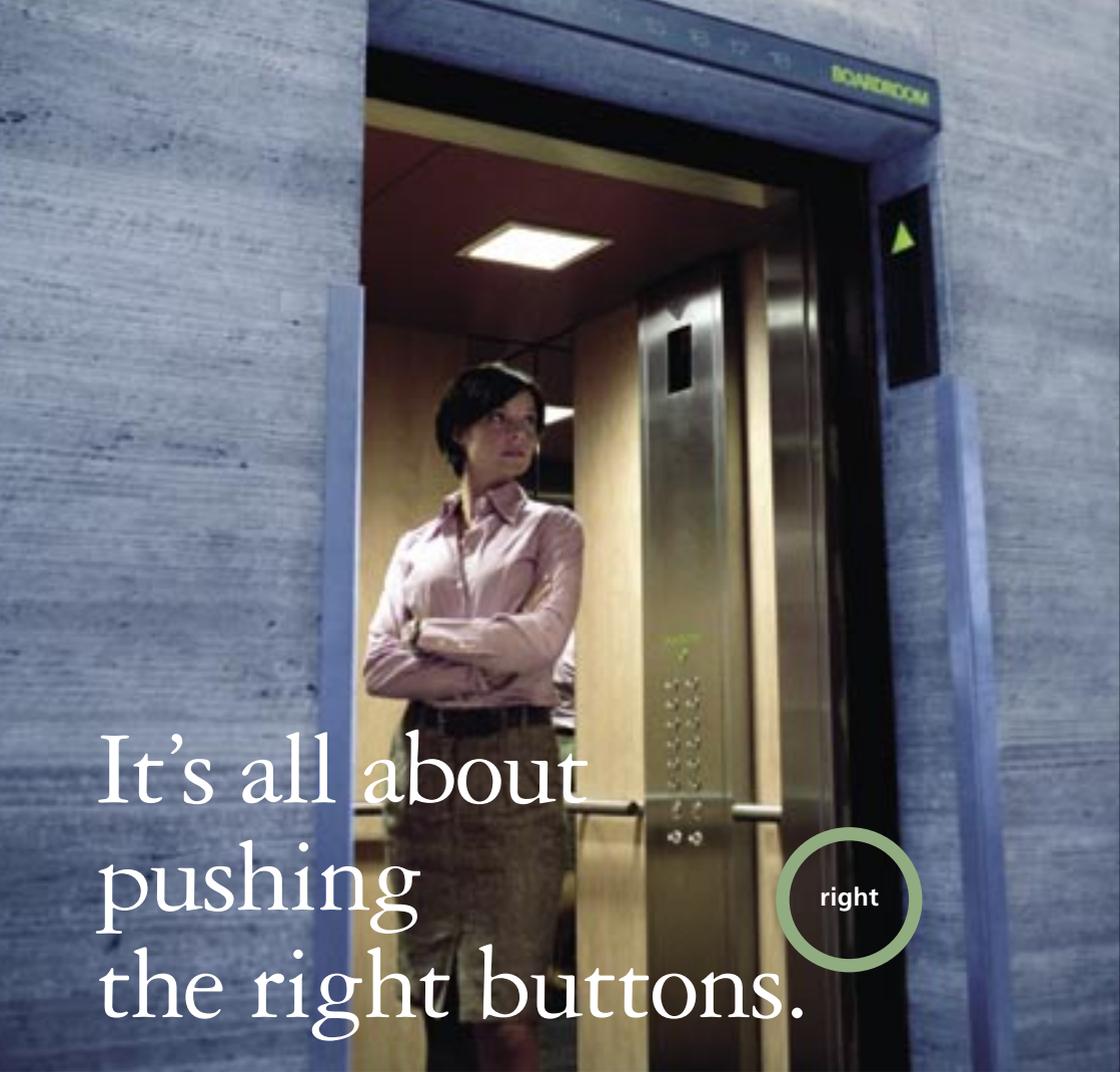
### Investigating the hedge fund universe

We have investigated the hedge fund universe supervised by Deloitte, the perfect chance for us, physicists, to meet the world of finance. Hedge funds are a relatively new way of investment. Recently they got a lot of attention in the general media. Hedge funds differ from traditional investments; they are closed to the general public. Instead, they are private and have a high investment threshold. Since they are private institutions, they are allowed to use investment instruments that are not available to more regulated investors, such as mutual funds. Among these instruments are short selling, leverage and more complex derivatives. This allows for investment strategies that are very different from traditional strategies.

Since hedge funds are private, they are not obliged to give inside information about their assets and results. To be able to investigate hedge funds, we therefore turned to so-called hedge fund indices. For this case study we investigated two benchmarks for the general hedge fund industry: an investable index (FTSE Hedge) and a non-investible index (HFRI). Both benchmarks are split into several subindices, based on investment strategy. Next, we have compared the investable index with benchmarks of traditional investments, like stock, bonds, commodities and real estate.

Indices are interesting to investors if they combine high results with a small standard deviation. While the mean monthly results of the investible FTSE





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Hedge index are always lower than that of the non-investible HFRI index, the standard deviation is in half of the cases smaller, leading to less risky investments. The results of the hedge fund indices do not follow a normal distribution, but a log normal distribution like the results of ordinary stock. Performing hypothesis testing indicates that FTSE and HFRI do not always come from the same source distribution, which means that they have a different constitution, however the FTSE indices all correlate with the HFRI indices.

Almost all FTSE hedge fund indices show a correlation with the stock indices Dow Jones and S&P 500, and no correlation with the Goldman Sachs commodity index, the Lehman Bond index and the NCREIF Real Estate Index. The final product of our case study is a comprehensive clear analysis of hedge fund performance, which is ready to be used by Deloitte.

Performing this analysis we had to read and learn a lot about statistics, finance and other things unfamiliar to physicist. Although it seemed unclear sometimes, we managed to get a good overview of this aspect of hedge funds. The project was performed mostly from Groningen, with two visits to the Deloitte office in Amsterdam, once to outline the project and once to collect data and discuss the progress.



## Case UOCG

*Gjalt Bearda and Wim Ottjes*

### **Translating the UCLT homepage to English**

The short description of this case is translating the homepage of the University Centre for Learning & Teaching (UCLT, in Dutch known as 'UOCG') into English. There was only a Dutch version of this homepage. The UCLT is already regionally and nationally the information and expert centre in its field, but aspires to have an international pioneer role. It is doing some projects in foreign countries, like Ghana, Macedonia and Uganda. So the need for a homepage in English was there.

We, Gjalt and Wim, needed to make sure that there would come an English version of the homepage. First we talked with a few people from the UCLT to get an idea which parts of the homepage needed to be translated. We also talked with the Dutch student Johan Brondijk who currently is responsible for the Dutch homepage. We concluded that the best thing to do was translating everything except the information about the courses which are given in Dutch. The next task was the actual translation of the homepage. We had a lot of help from Aletta Kwant and Margreet van Koert, two students who did almost all the translation work. This was the part of the case which took the longest time. After the translation of several pages by one student, the other student verified the pages before sending the translation to us. We then looked at it and sent it to the UCLT where it was checked as well, because the use of technical terms made the translating sometimes hard. To simplify the translating we made a list of the technical terms. After this we published the translated text on the internet. In total there were around 180 A4 pages (!). It took around 25 weeks to translate it all, which means seven pages a week were translated and verified several times. When everything was translated and uploaded we checked the whole homepage for missing parts and bad translations. We would like to thank Johan Brondijk, Aletta Kwant and Margreet van Koert for all their work.

# Daily Reports Taiwan



## Saturday, 14 April

*Erik Duisterwinkel*



The moment I wake up at departure day, I am in a mental state I've never been before last months. A total relaxed state, the last thing I would have ever expected. Well maybe not that unexpected; last weeks were the most hectic weeks in my life. As a committee member of Orange Tigers '07 there was no life outside the last minute organization needed for the studytrip. Now everything is done, everything is organized, my bags are packed, the only thing left to do is taking the plane. Several minutes before 7 o'clock I call my committee members, just to ask how they slept, some were more stressed than others.

On my way to the train station in Groningen, my legs were starting to feel strange, a pleasant tingling which I couldn't control. Once at the station I saw the participants waiting for the trip to begin. The atmosphere in the train was good! All excited for the trip. Everything went smoothly, we arrived at Schiphol Airport at the correct time. There were still hours to kill before the plane would leave, everyone went his own way. Duty free shopping, drinking coffee while watching airplanes or just walking through the terminal. Only a long flight was between the tigers and Asia. Once in the plane, which left at 2 pm, everyone was excited again. You could watch a lot of movies, listen to a radiostation, play some games or just chat with the other tigers. To start working against the upcoming jetlag, we had diner at dinertime in Asia. Around midnight, Hong Kong time, we all felt like home in the airplane. With all the free (alcoholic) drinks and walking/sitting everywhere we created a very cosy atmosphere, the plane looked very much like a nice bar. Even the fast-noodle-soup was included.

Now three hours before arriving in Hong Kong, everyone wants to get some sleep before it is too late. Most people cannot sleep and just relax by listening music or watching some TV. Behind me is a discussion in progress about whether or not taking into account the wind speed of 250 km/h in the direction towards Hong Kong at an altitude of 11 km and a groundspeed of 1,100 km/h for breaking the sound barrier. We are above Mongolia now. While I am ending this report of the first day, the conversations are fading away. Not because I am getting tired, no, not at all; the rest of the group is getting tired. It is that strange tingling feeling again, the same I had this morning, but now all over my body. It is the feeling I hope to have next three and a half week while experiencing the GBE!

## Sunday, 15 April

*Erik Duisterwinkel*



A couple of hours still left in this airplane. And then we would arrive at the airport which is declared five times as best airport in the world. There was no-one to be found on the



airport, empty, just 27 tigers waiting for the next plane. Maybe because of the time of the day, it was 8 o'clock in the morning. Our transit plane had some technical malfunctions which had to be fixed. Approximately half an hour behind schedule we could leave the man-made island where it was already very hot and the humidity high.

Arrival at Taoyuan Airport went smooth. Grabbed our baggage and went searching for our guide Anna, a Dutch woman who studied Chinese culture and language in Leiden and was for two months in Taipei. She helped us with getting Taiwanese money, a sim-card and helped us communicating with the busdriver. In the bus we could directly see what was the most favourite activity in Taiwan: KTV! The bus was full of colors, flowers and an integrated karaoke system with several microphones, lights and four LCD-screens. It was approximately a one hour trip through the country straight to the hostel. The hostel was on the eleventh (and upper) floor. Sofia, the owner of the hostel, was very nice and showed us the different rooms: the boys slept on two 8-person rooms, the professors on a 2-person room and the ladies on a 3- and 6-persons room. There were four showers and toilets and also two living rooms.

Most of the people unpacked their bags and left to see more of Taipei. Together with Margriet I had to organize lots of things so no sight-seeing for us today. We ate with some other tigers near the main station in central Taipei. Not shortly after that most people were sleeping, all tired of 24 hours of traveling and the first wonderful impressions of Taipei.

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## Monday, 16 April

*Sietze van Buuren*



### Yangmingshan Park

Our first full day in Taiwan was a relaxing one. We went to Yangmingshan Park with the bus to regain strength after the long flight. It is situated one hour outside Taipei City. Yangmingshan Park was the perfect place to relax. The park is a few hundred meters higher than the city, so there is no smog and the temperature is more comfortable. Under the guidance of a volunteer from the hostel, Po-Han, the whole group went hiking in the park to Ching Tiangang in the morning.

On our way we saw some local animals like lizards and snakes, which are indigenous to Taiwan. We also passed a beautiful waterfall, where we stayed for a short break. After this we continued the hiking tour ending up in a grass-land. Here we enjoyed the nice Asian atmosphere, which was comparable to some scenes from anime movies like Spirited Away and computer games like Secret of Mana. After this we returned to the bus and had lunch.

In the afternoon the group split up. The majority went to a local hot spring, powered by geysers which could be found all over the park. The other part of the group (including me) climbed the Cising Mountain (1,120 m), which was nearby.





The hot springs were very relaxing. There were baths varying in temperature from cold water to really hot water (38° C - 45° C), mud baths and a lot of locals who were quite entertained by all those foreign visitors. The only downside of it all was that the sulphur level in the water was really high, which resulted in smelly clothes and skin for a few (!) days.

The hiking group witnessed these geysers from close by and they indeed smelt very bad. The strong wind and all the chemicals coming free on the surface have a major impact on the flora in the park. In the higher parts around Cising mountain one will only find silver grass and arrow bamboo. Only these plants are able to withstand the high sulphur and acid concentration in the ground.

In the evening we visited the night market where you could see and/or eat the most exotic kinds of seafood varying from turtles to starfish. One could even pay to see a huge snake eat a living rabbit! Nearby the official market there were all kinds of stands where one could play gambling games, preferably with shouting people in a microphone nearby.

The night was finished with the first (and certainly not the last) karaoke session in the Party World, which was truly hilarious.

## Tuesday, 17 April

Anneke Praagman



### National Central University (NCU)

This morning we were picked up from our hostel by a NCU-bus. The day at NCU started with a short introduction from Dr. Lin about the university and its history. Originally founded in Nanjing in mainland China it moved to Taiwan in 1969. The 11,000 pine trees that give the campus its distinguished look represent the 11,000 students at NCU. After this introduction we were divided into six groups for a tour around the campus by NCU student ambassadors. It was nice to talk to our peers about the differences and similarities of student life in Taiwan and the Netherlands while tasting the atmosphere around the campus.

At the Centre for Space and Remote Sensing Research (CSRSR) we attended a presentation of the founding director of the institute founded in 1984. Part of their activities is tracking satellites from France, ESA, USA and Taiwan while they fly over Taiwan with the antenna on the roof of one of the buildings. At this institute they also make simulations from the images that are taken with the FORMOSAT-2 satellite. We got to see a 3D fly-through of Taiwan. After this we were taken to lunch at the restaurant which is run by students of NCU. Pim was declared most attractive male of our group by the female Taiwanese students. After lunch we were again divided in smaller groups to check out the biology, chemistry or physics laboratory. In my group (biology) we were given an overview of the activities at the life science center and took a look around the laboratory while informing each other about the education and research in Europe and Taiwan. When we walked over



to the Institute of Space Science afterwards, I found out that Taiwanese birds like any other birds like to poop on people's heads.

At the Institute of Space Science at 25°N, 121°E we learned about their many activities including ionosphere analysis. They also invest in a successful outreach program. A space camp for high school or even elementary school students is held where they e.g. learn to build a water rocket. We concluded our visit with a trip to the roof where the receivers were found.

This was our first introduction to higher education in Taiwan and I think it has been very insightful.

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## Wednesday, 18 April

*Wicher Visser*



At a comfortable 9:15 am the first signs of life could be registered in one of the rooms of our hostel. A moment to catch up some sleep from the intensive cultural programs in the evenings and early nights. This day promised to be a very interesting one. Our program included a visit to the Netherlands Trade and Investment Office (NTIO) and the Intelligent Media laboratory (IM lab). While most members of the scientific excursion enjoyed the in-house served roasted bread slices with jam, some went out to discover the breakfast habits of successful Taiwan businessmen, and to enjoy a vitalizing cup of coffee, of course.

One of the most enjoyable aspects of Taipei is its cheap cabs. At very low fares you can get anywhere in the metropolis of 2.3 million inhabitants. Their immense quantities and everwillingness to accept you as a customer - even if it is only for a short ride - make it the unsurpassed means of transport. Thus, about half the group hailed a bunch of yellow cars while the others decided to take an energetic walk to the NTIO and catch a fresh breeze of morning smog.

The NTIO is located in the business district of Taipei. We are welcomed by Dual Wu, head of the Netherlands Education Support Office. The NTIO promotes, in collaboration with the Dutch international education organization Nuffic, education in the Netherlands to Taiwan students. As one of the leading arguments, mr. Wu presents the Netherlands as a country whose language doesn't need to be learned. The Dutch are proficient in English, a language of enormous importance in anglo-oriented Taiwan. Although the Netherlands seem at first a bit odd for Taiwan students as a country to study, over 500 do, of which 99% a Master or Ph.D. This mostly concerns business-related studies; there are currently only few relations with science departments. The Netherlands have a long and friendly relation with Taiwan, initiated by the VOC Trading Company and is respected as an innovative and creative country. As a result, The Netherlands are the fourth most important trading partner of Taiwan.

Despite the extensive cooperation Taiwan's reputation among students from the lowlands



is far from perfect. Only a few study tours visit the island and Dutch students can be counted on a pair of hands. Ever since the Dutch government approved the supply of submarines in 1980, Taiwan has remained underexposed to the Dutch public. This approval led to Chinese trouble, withdrawing their ambassador from the Netherlands. With the arising economical power of the People's Republic of China, the focus has shifted to the mainland. To make matters worse, the Taiwan government does not actively promote studies in the Netherlands.

Taiwan is one of the Asian tigers. It has a strong economical base, backed by its high-tech industry. Aware of the potentials, Taiwan does not linger at polder discussions. Instead, it invests billions of US dollars in science parks and strategic benefits. An efficient operatus consisting of a collaboration of academics, industry and government allows for rapid planning and implementation. Consequently, vast high-tech sites are all around. As before, Europe worries about the emergence of Asian economical powers; not so Taiwan. The lurking danger of China's massive potentials are yet nowhere to be seen. Menno Goedhart, head of NTIO, indicates that Dutch trade with Taiwan almost equals that of mainland China. Moreover, the economical growth of China is mainly powered by foreign industry. The Taiwan government, for example, has already invested over 200 billion dollars. Deviously, though, about half of which has been routed through the notorious Cayman Islands.

Despite this interest, China and Taiwan are still in strife about the claims on the former Chinese empire. Officially they are known as Peoples Republic of China and Republic of China'. Taiwan's activities are once in a while frustrated by China. Remarkable was the obstruction of the award winning post stamp by a young Taiwan boy. A miniscule Taiwan flag raised the Chinese anger, causing the prize never to be handed out. China also administers large amounts of pressure to any country accepting Taiwan as an independent state. Only a few minor nations accept Taiwan as a nation, among which none of any significance. The position of The Netherlands, for example, states that China and Taiwan are one nation, but this excludes an attitude towards the owner. This debate dates back to the aftermath of World War II, after which the Chinese nationalists, the Kuomintang (KMT), led by Chiang Kai-shek, were expelled from the mainland by Mao Zedong. Although the relation has cooled down aftersince, a fusion between the two nations will most probably not occur.

Chang Kai-shek ruled as a dictator, supported by a large base of nationalists which are still very active in politics. Two parties battle for senate dominance, the nationalist KMT and the progressive DPP, which regularly results in physical contact. And although 1996 witnessed Taiwan's first free elections, the government is far from effective. However, one major issue has their mutual agreement: establishment of Taiwan as a major economical player. Debates on cultural origin always end in disagreement, due to the polarization of the two major parties. The DDP consist of many victims of emprisonment under the rule of Chang Kai-shek and thunnel their hatred towards the KMT. A liberal attitude is far from seen, although in recent years young politicians gain a bit of a foothold. Their agenda lists social programs, environmental issues and modern insights.

But not all young Taiwanese fancy a promising future; mostly females express that urge. Taiwanese men have been raised with the ideas of Confusianism. The dogmas of this belief



teach strict rules of esteem. Reputation, rank, age and gender are the important factors for respect. The wise should not be refuted and husbands rule the family. This traditional, patriarchal foundation is challenged by the young females tired of being pushed around. They seek their future of complete independence in university education and dominate the academic population. To the contrary, their male counterparts carelessly enjoy their bestowed respect. Yet Confucianism remains omnipresent: students often still live at their parents' and become influenced, superiors cannot be questioned and professors are always right.

Unfortunately, time flies with so many insights and after a good lunch snack it is time to proceed to the IM lab. The National Chengchi University, of which IM lab is part of, hosts over 16,000 students, training them in engineering. This focus on education has profound impacts on research. Much of the presented topics are oriented towards industry. Their department, director Li explained, develops applications using procedural animation, locomotion, motion planning and intelligent user interfaces. Much of the work is carried out using proven techniques. A demonstration of an intelligent avatar generator produced cartoon-like snapshots of the interested tour members. Overall, it has been a interesting and entertaining afternoon.

The evening brought a large delegation of the group to a Thai restaurant. Having filled our empty stomachs with again an excellent meal - as we have become used to in this Chinese-influenced country - some of us decided to visit the Snake Alley, the tourist night market of Taipei. It is composed of a covered market street sided by little tourist shops and restaurants, stretching out into the neighborhood. Lots can be seen: enormous fish, snakes, tiny shops, snack booths and lots of simple fair games buzzing with locals. But it is definitely not the hot street markets we were hoping for. Not so much 'night' activity either, as it all closed down at 10. Tired of the drag we headed back to the safe haven of our hostel. By cab of course. There we evaluated the day, a few with the joy of a 'boompje klaverjas'.

## Thursday, 19 April

*Stefan Postema*



It was a beautiful day when we were going to the Hsinchu Science Park. The sun was shining and everybody was in a good mood. We took the bus to Hsinchu City. Since we had a good bus driver, we arrived a little bit too early at the park. We were expected at 10 am but the clock said it was 9:45 am as we arrived. Well, since it is better to be fifteen minutes too early than one minute too late, we walked to the main building and asked where we had to go.

A nice lady from PR received us but it looked like she didn't expect us. The worst nightmare of the committee. But they didn't panic, they stayed calm. The PR lady told us she was expecting a group of Korean students at 10 am and not us. Then someone came up with the idea that we could be those Korean students. The committee told her our name and



suddenly a smile appeared on all the faces. The problem was solved.

We were presented an introduction video of the park and learned that there were eleven parks in total, with each having its own speciality (but not all of them). We learned all kinds of facts about the park, such that it was previously owned by farmers, who were paid a nice sum of money for their land, so the park could be build. It is all too much to be written here, because the list is long. At around 11:15 am we went on a tour around the park with the bus and saw where the people worked and lived.

For the lunch we had the choice to go to the Subway or a restaurant. Some of us, including myself, went to the Subway. It was nice to have some western food again and I must say, I will more often go to the Subway, it tastes very good.

At around 1:50 pm we were expected at ITRI, which stands for Industrial Technology Research Institute. We were welcomed in a beautiful little cinema theater and watched the introduction video. We again learned some facts. If I recall correctly, the inventor of a patent will get a certain percentage of the royalties if the product is being produced and sold. That can be very lucrative to work there.

Then it was time for the tour. Not around the facility but along an exhibition of products developed by ITRI. Some of the stuff was very impressive and some of the things were just cool. Like an underwater robot, that can be remotely controlled. I would like to have one, even if it's only because of its coolness. Also a bottle that plays music when a bodypart gets closer on it, a Marilyn Monroe that sings Chinese, flexible displays, a bomb resistand cargo container, too much to mention everything. It was too much but it was marvellous to see. After the tour it was time to go back to the hostel. We took our bus and went on our way. It was an impressive day.

## Friday, 20 April

*Bernadette Kruijver*



Friday morning April 20 we visited Deloitte. Deloitte is established at the twelfth floor of a wonderful building in one of the business districts of Taipei. They preferred this place to the Taipei 101 building where competitor KPMG is residing. Maybe due to anxieties of terroristic issues, maybe just because of the tiramisu the neighbours are selling.

Deloitte's full name in Taiwan is Deloitte Touche Tohmatsu, combining T N Soong & Co and Deloitte & Touche on June 1 2003. Deloitte is known all over the world for its professional services related with Audit, Enterprise Risk Management, Financial Advisory Services and Tax services with more than 135,000 employees. Special for Deloitte Taiwan is their "China expertise": they speak the language and know the culture. Perfect for companies that need some assistance with their investments or other businesses in China.

Deloitte offers students the opportunity to do an internship. But if you would like to visit



Taiwan again and work for them, you have to learn some Chinese and a little about the (business) culture. Not that easy, but very interesting. What to do if you greet somebody? Do you shake hands, do you bow? Which chair do you choose at the conference table? What do you wear to a cocktail party? Difficult questions for a foreigner. Some tips of another stranger working for Deloitte Meghan Rogers (USA): bow, sit next to the door and ladies better dress up, but boys can wear flip flops.

The afternoon program was free, so I choose to visit the National Palace museum, one of the most famous attractions in Taipei. The impressive building with beautiful gardens is situated with an amazing view into the mountains. This only makes it worth visiting the museum. But they also have a world-class collection of Chinese art and cultural treasures. Taiwanese like pieces in the collection that are crafted from natural materials most, such as semi-precious minerals. For example some strange cabbage of jade. Lucky for you, they all crowd around this cabbage, so you can easily spend your time at the more quiet but much more interesting places.

## Saturday, 21 April

*Gijs Noorlander*



### Temples, towers and tainting temperatures.

Today the weather was pressingly hot and so a lot of us were carrying hand fans, or even umbrella's for the shades and quite often a few of us slipped away to some convenient-stores to get some cold water.

Austin, one of the fellows we've met thanks to Sofia, accompanied us to conquer the language-barrier, telling stories about the things we saw and last-but-not-least for fun. On our way to the first sight-seeing this morning, by subway, he was taught some basic Dutch phrases and in return our knowledge of Chinese phrases was almost tripled by the end of the ride.

Our first stop was at the Longshan temple, a temple that worships a mixture of Buddhist, Taoist, and several other folk gods. In here Austin told us about the way people pray here and often sacrifice something for the god(s) they want to please. For almost anything there was a god, like for doing well on your exams or finding a lover.

The next stop was Chiang Kai-shek Memorial Hall, a (really large) national memorial to the late President of the Republic of China, built after his death. In Taiwan, there is a lot of controversy about this monument, its name and the status. What struck me by surprise was that a lot of school-groups were performing their group-yell at the large square in front of the memorial hall. I expected it to be a bit more solemn.

Lunch was planned at Howard's restaurant on the 45th floor of the Shin Kong Tower. However we already had our lunch at the floor below, when we discovered the 45th floor. But





the view was still beautiful and we could see the Taipei 101, our next stop, glimmer through the smog. If one would think the view from Martinitoren in Groningen is great, or the view from a plane while landing, it's nothing compared to the view we had from the 84th floor in there. The only limiting factor of not being able to see Amsterdam, was the smog. After all the names of a lot of cities, one was looking at, were printed on the windows.

## Monday, 22 April

*Pim Lubberdink*



On day 9, we paid a visit to the Pinglin tea museum. Because it was Anneke's birthday, we used our karaoke skills to sing her a nice birthday song in the bus. Today Sofia joined us. Because it was Sunday she was in great doubt if she would come with us, because she had to be in church, but after praying to her God, she thought He would agree that it would be much more important to be a guide for the Dutch tourists than to sit in church. In my humble opinion, her God was right.

The Pinglin tea museum contains everything that there's to know about tea. The visit especially made clear that tea is a serious business in Taiwan and China. Every dynasty had its own ways of preparing tea. Among other things we learned that only in the Ming dynasty (1368-1644) the teapot became very common.

But also nowadays people are really serious about tea. There's a huge variety of ways to process tea, which will result in different types of tea: green tea, black tea, white tea, yellow tea, brown tea. The difference in processing lies in the way it's fermented. Green tea for example does not undergo a fermentation process. Black tea is totally fermented. Oolong tea undergoes some fermentation, but not as much as black tea, giving it a taste that's similar to green tea, except it's less grassy. Fermentation is only one of the many production steps for making tea; there's also the steaming, squeezing, drying, grinding, heating and the storing of tea that give each tea its individual taste. Even the way the tea is picked makes a difference according to the museum. Also the time of picking is important: tea picked in the first days of spring tastes significantly different than tea picked in other seasons.

After we drank a cup of tea we left the museum to have lunch in a nearby restaurant, where also the busdriver - the most handsome Taiwanese man according to Corine - joined us. He taught us that you shouldn't bother peeling shrimps, but just eat them completely. The meal was again delicious, except maybe for the dessert that consisted of a kind of jelly and some green rubbery stuff with black beans inside. It was not at all a problem we didn't eat all of it, because Sofia arranged we could bring it along as a snack for later that day.

After lunch, we went to a small river where we could take a swim in the very clear water. Earlier that week we had learned from a Taiwanese student that in Taiwan, not everyone is taught how to swim. But fortunately, everyone in our group could, so we all took a dive.



Even Sofia joined us. She also reminded us a couple of times not to forget the nice snack we brought from the restaurant. Then it was time to return to the hostel.

Later that night we had a great party at the roof of the hostel to celebrate Anneke's birthday. We drank plenty of Taiwan beer and there was much rejoicing.

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## Tuesday, 23 April

*Reinhard Morgenstern*



### **Visit at the Academia Sinica** ([http://www.sinica.edu.tw/main\\_e.shtml](http://www.sinica.edu.tw/main_e.shtml))

We had high expectations from this visit: the Chinese Academy of Science is one of the top research institutions in Taiwan. Moreover Yuan T. Lee – its director in the period from 1994 to 2006 – had received the Nobel prize in chemistry 1986 for his contributions concerning the dynamics of chemical reactions. The Academy has its own research institutes and is in a favorable financial situation. Its funding comes directly from the ministry of Education and Culture, whereas all other research institutes in the field of science in Taiwan are under the ministry of economics.

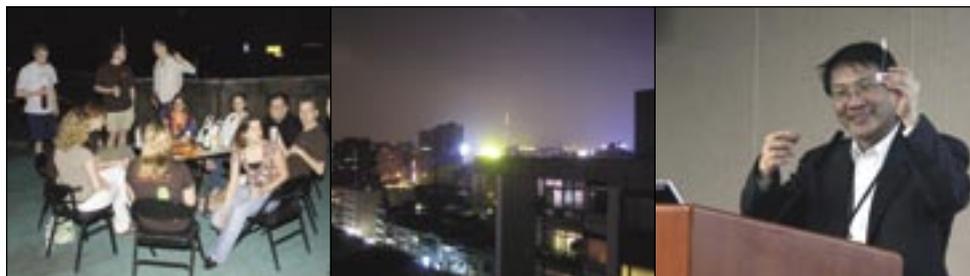
Our visit was well prepared by the hosts: everybody received a badge (with the KVI logo: due to an early e-mail contact between R. Morgenstern and Y.T. Lee our hosts apparently thought that all the students came from the KVI). The program consisted of an introduction to the Institute of Physics in the morning, to the Institute of Information Science in the afternoon, and a lunch together with Y.T. Lee in between.

### **The Institute of Physics** (<http://www.phys.sinica.edu.tw/>)

The research of this Institute is centered around three main topics namely Nano Science , Medium & High Energy Physics and Complex Systems. In the first place a member of each of these clusters gave a presentation with an overview of the activities in these fields.

The Nano Science group is partly engaged in the development of new tools for the field, e.g. a single atom tip for scanning tunnel microscopy. They are e.g. proud to be able to routinely and repeatedly create single-atom sharp pyramidal W tips, with atom-perfect wedges. Also they have developed a new phase-contrast radiology method using synchrotron radiation which e.g. allowed them to visualize the inside of blood vessels in a mouse without invasive interactions.

The Medium & High Energy Physics cluster gave participates in various international research projects e.g. at CERN and other places. Although we could not really judge the role of the Taiwanese groups in this research we got the impression that they indeed deliver essential contributions to these projects. An indication of the international standing is the fact that the Institute of Physics is the Grid Computation Centre for the Asia Pacific area not only in the field of physics but also in biology.





Finally a member of the Complex Systems cluster gave a short presentation. Topics including biology inspired physics and nanoscience, nonlinear phenomena, strongly correlated materials and social related models (flocking of animals) are studied.

The visit of the institute was concluded by a short visit of some research laboratories, including the surface physics labs and the nuclear physics lab. Unfortunately not much explanation was given during these visits. Also there was a lack of time. So only a general impression of various surface apparatus remains. In the nuclear physics labs a tandem accelerator and some experimental equipment was shown and some experiments including PIXE (Proton Induced X-ray Emission) for paint analysis in ancient paintings were shortly explained.

### **The Institute of Information Science** (<http://www.iis.sinica.edu.tw/>)

We had several presentations of the institute's activities, including multimedia signal processing, pattern recognition, speech processing, machine learning, bioinformatics computer vision and virtual reality, to name only a few. One of the major projects is the National Digital Archives Program. Its goal is "to digitize our cultural collections in the major museums, libraries, universities etc. under the collective title 'Taiwan Digital Archives'. It is the first National Science and Technology Program that integrates information and communication technologies into social sciences and humanities studies" (O.J.L. Tzeng in his preface to the booklet about this program). Another interesting project deals with spoken document retrieval, whereby e.g. TV news are automatically analyzed in order to distinguish and separate text fragments spoken by the general speaker from contributions presented by various outside reporters.

### **Lunch with the Nobel Prize winner Yuan T. Lee**

The hosts offered an excellent Chinese buffet lunch together with Chinese students and staff members with whom we could discuss various topics. Yuan T. Lee welcomed the guests from the Netherlands and gave a speech, pointing out the historic relations between the two countries and especially articulating his concern about the future of our planet Earth. In his view it is essential that we all try to limit the use of natural resources. Eventually we should exclusively depend on renewable resources. On the other hand he regards it as unrealistic and unwise not to use atomic energy, certainly for a transitional period in the order of about 50 years.

On leaving the Academy everybody received an extensive (and heavy) brochure describing the Taiwan International Graduate Program, including application forms. The Academia Sinica closely cooperates with various universities and strongly promotes this program. Ambitious students are welcome to apply.



## Wednesday, 24 April

*Fabio Bracci*



It's already tuesday. Time flies as ten days in Taiwan are already finished. It feels early in the morning, although it's half past eight. After an intense week with every morning a different activity people are getting drawn. That is also caused by the fact that everybody was eager to go out in the evening; go to a night market, experience the karaoke at a Party Palace or simply walk around in one of the crowded districts of Taipei. The lack of sleep has become a heavy burden on us and everybody in my room sleeps. Still I'm waking up, I already packed my luggage yesterday evening and I'd like to make the best out of my last hours in Taipei.

Suddenly I realize I'm late: Sam is already dressing up after his shower and he agreed to go to the National Museum with the unbreakable Reinhard en Kurt... even if they aren't the youngest, in these ten days Taipei they were always walking the fastest, the longest and the furthest away, enough proof of their vigour... so I need to hurry up even today.

But half an hour is really too short... yesterday evening I already started packing my luggage, but when we left Schiphol I already had 20 kg luggage, and more stuff has come by, so it will be a tricky task to get everything packed. Indeed Sam, Kurt, Reinhard and Corine leave to the National museum when I'm eating my breakfast and still need to finish the packing... bad luck, now I need to find other mates for this morning. Luckily Anna just gets awake and tells me that she's going to the Sun Yat Tse Memorial; I haven't been there yet, so I'm happy to join her and Ruben.

We leave Sofia's hostel around half past ten, while everybody is cleaning up, packing and shifting through all the received presents and brochures. The hostel looks like a bee's nest, with a swarm of people busy with their own little tasks.

Half of the morning has already gone and we need to hurry up, so we take a yellow cab, we are getting familiar with them... we jump in, take the map and point at the Sun Yat Tse Memorial. The cab driver seems to understand (does he really? It's never clear, he looks friendly and confident, but he says Chinese things and you never know what he exactly means...) and the cab leaves.

And then there we are: the Sun Yat Tse Memorial is a big building with a pagoda-roof, surrounded by a large park. Inside you have a huge statue of Sun Yat with an honour guard. Thinking also to the Chang Kai Shek Memorial, I start to think that Taiwanese people are good at making huge buildings... We walk around, but it's a quiet day and there are only a few people around. In the memorial there are just cultural expositions (everything written in Chinese), and the park is rather empty, it's around twelve so the time has come to go back to the hostel... at two o'clock the bus to the airport will pick us up, it would be very unfortunate to miss it! I take Taipei's subway for the last time, ask for the refund for the subway card, walk back to the youth hostel through the food court... I will miss Taipei!



Back in the youth hostel, people drop in all the time... there is something funny in the air, some try to put together their impressions about Taipei, others are wondering about Seoul, the next destination, a few simply play cards...

And the bus eventually comes... the green kitschy Evergreen bus! We'll miss this as well, with the very gentle driver... even Austin jumps in. He wants to take time to say goodbye (very kind!) and to distribute traditional Chinese stones with a different colour for different meanings: health, money, luck...

And there we are, at Taoyuan airport! There we need to say goodbye to our friend Austin and to our nice time in Taipei. It's a strange day, it looks like we are always waiting for something: the bus, the check in, the boarding time, the delayed flight...

Touchdown in Incheon! Now we are again in an unknown country, this time South Korea. It's already late in the evening and there's no time to do anything else than to collect our luggage and go directly to Kim's Guest House, our new base. It's funny, as our bus stops and we need to get out we see the police everywhere around us... but it's simply some kind of alcohol driver's check!

The whole group takes the bags out of the bus and there we go, dragging our stuff down the street to Kim's place... we got dropped next to Hapjeong station (it will turn out to be an important crossing in Seoul's huge subway system), but Kim's is some 200 m far away.

Kim's Guesthouse is spread among three houses in a residential part of Seoul, rather different from the ten stores high flat along a main road of Sofia's place in Taipei. But it looks cosy, there's also an "internet station" (\*very important\* in everyday's life of scientific students... :) ) in the living room of the main house and people are chatting till late in the evening, so we quickly feel at home in this new place.

We spread and take possession of our new room... we have no slack time, we need to settle quickly and go to sleep, tomorrow there's again a busy schedule in mysterious Seoul!





# Daily Reports

## South Korea



## Wednesday, 25 April

*Gjalt Bearda*



After a good night's rest, we all became familiar with our new kitchen where we had our breakfast. After everybody was dressed up in their suits, we walked as a group to the bus which was waiting for us at a crossing five minutes walk from our hostel. In the bus we all celebrated the birthday of Ruben, who became 23. The first view of Seoul in daylight was quite similar from what we had experienced in Taipei. There are lots of small shops and many broad roads through the city. Also this city has lots of influences from the USA; lots of Mc Donald's' and every 500 m a Starbucks. But there was one very clear difference; in Taipei everywhere you looked you saw lots of scooters while here in Seoul it wasn't the case at all...

Because of good traffic we arrived forty minutes earlier than planned. The game-develop company Gravity Co Ltd. was the first company we would visit in Seoul. Like every company we visited in Taipei, our schedule started with a welcome speech of one of the employees, followed by a short movie about the history and their achievements. Here we learned that Gravity is a big player in the gaming industry. They develop so called "Massive Multiplayer Online"-games, where all the players interact in a large simulated world. We also saw some screenshots of new games they are developing, like a racing game, and the successor of their most famous game; Ragnarok II.

After this presentation we visited the working floor. Three floors filled with cubicles where lots of employees were designing new characters, new objects and new maps for in their games. The Computer Science students were disappointed that we didn't see any computer where someone was programming, only designers. But for Sietze, who likes 3D designing too, it was a Walhalla.

After this visit the bus drove us, the tigers, to the area where the Dutch embassy is located. We arrived there around 12:30 pm but our program at the embassy started at 4:00 pm, so everybody got some free time to get their own lunch and look around in the city. Very quickly some sub-groups were formed; some went to a museum and others visited the city-centre, so did my group. All dressed up we managed to enter an office building with about forty floors and went to the top floor. At this floor a restaurant which we unfortunately couldn't afford was located. After having a cup of coffee (which was quite disappointing when we compared the price with Taiwan) and a snack, we went back. There we heard that the group who visited the museum were treated like famous people, every Korean wanted to get a picture of them and of course an autograph.

Then we went to the fourteenth floor of the building where we visited the embassy. Our visit at Dutch soil started with the Technical Academic advisor (Peter Wijlhuizen), who told us something about Korea and the industry. Then the ambassador, Hans Heinsbroek, entered the room, took over and gave us the opportunity to ask lots of questions. Some



questions were about the efforts for unification of South and North Korea. South Korea is doing lots of efforts, but unification lies far ahead. Today, or any day soon, unification isn't very likely because South Korea simply can't afford to get North Korea at the same level of education, healthcare etc. And of course questions were asked about the stunning working hours (about sixty hours per week on average). It is caused by the huge sense for punctuality and respect for elderly. After the questions some time was reserved to have a drink at the embassy, where other employees were present. After thirty minutes of chatting with the employees, and eating some snacks and even Dutch cheese, we went back to the bus. Unfortunately the bus couldn't wait any longer, so we had to leave.

When arrived at the hostel, Ms Kim (the host of the hostel) was already making dinner for the party that would start a little later. So many tigers decided not to eat in a restaurant, but eat the delicious pancake Ms Kim made. Then the celebration in the main room started. After some drinks and laughter, everybody went to bed at a respectable time, because the next morning the schedule told us that we had to be at the bus stop at 7:50.

## Thursday, 26 April

*Kurt Lust*



KAIST or Korean Advanced Institute of Science and Technology is one of Korea's best universities. It is located in Daejeon, a city near the centre of South Korea, some 140 kilometres south from Seoul, so we had to leave early in the morning. The departure by bus was scheduled at 7:50 am, but we left a few minutes late. However, we were lucky with the traffic conditions. Though the highways were very crowded all the way to Daejeon – Seoul is one of the largest cities in the world and the population density of South Korea is comparable to the Netherlands – we lost only half an hour or so due to traffic jams and there was time for a ten minute stop at a rest area near Daejeon at 9:45 am. At 10:50 am, we entered the KAIST campus. Like probably all Korean universities, the campus is organised in an American way. Lecture halls, lab buildings and student dormitories are scattered over a spacious park area. A big pond with a work of art reminding of a bell tower (also typical for American universities) immediately drew our attention.

At 11 o'clock the group was received in the visitor's hall of the main administrative building where we watched a presentation about KAIST. We were welcomed by staff from the International Relations office and a student of industrial engineering. Like most if not all Korean universities, KAIST is a very young university. It was established as a graduate school called the Korean Advanced Institute of Science at Seoul in 1971. In 1981, KAIS merged with KIST, the Korean Institute of Science and Technology and purely a research institute, to form KAIST (see also the report on day 20, when we visited KIST). However, the marriage was an unhappy one and KIST and KAIST separated again in 1989. At that time, most of the activities also moved to a new campus at Daejeon to help with the development of the central South Korea area. Only the Technology Management program



remained in Seoul. The name remained unchanged. From then on, KAIST continued to grow to become the institution it is today. The goal of KAIST is to become one of the best science and technology universities in the world. It wants to become a competitor to MIT. It is now already a well-known institution in Asia. KAIST has a special position in South Korea: it is a public institution under the Ministry of Science and Technology rather than under the Ministry of Education.

Like all Korean universities, KAIST can select its students. It caters to the top 1% students of South Korea. Unlike in other Korean universities, students enroll early after their junior year in high school. Since students are selected when entering the university, they are almost guaranteed to also graduate unless they mess up completely. This situation is the same as in the USA and the United Kingdom. There is a mechanism to keep the pressure on the students to make sure that they work hard enough: Students pay no tuition as long as they perform sufficiently well. Each term, they need to get a grade point average of at least 2.4 (out of 4.3) for continuation of their scholarship. In 2006, KAIST had 7,336 students: 3,021 bachelor students (a 4-year program like in the USA), 2,089 master students and 2,226 PhD students. About 3.1% of the student population consists of foreigners. The university has about 3,500 faculty and staff members. It has academic cooperation programs with 79 foreign universities for bilateral student exchanges and some dual degree programs. In such a program, students receive a degree from KAIST and another university and spent some time at both universities during their education program. KAIST aims to teach in English in the future, though right now the majority of the courses is still lectured in Korean. Most of the faculty members got a PhD in the USA, so the knowledge of English by the staff is not a major problem. Students receive two months of English training in native English countries before entering KAIST.

Much like the science faculty in Groningen, KAIST has a dual organisation for education and research. Four colleges are responsible for the education programs while seven research institutes are responsible for the research. KAIST has both colleges of natural science and of engineering. There is no separate system of "Technical Universities" in South Korea for the engineering programs. KAIST has a budget of approximately 330 million USD per year. About 39% comes from government subsidies, 42% from research grants and 19% from donations. This is also a very American phenomenon: former students are very grateful to the institution where they received their education, and if they truly make it in life, they donate sometimes large sums of money to their former university (in some cases enough to put down a building with their name). KAIST also has international collaboration in research. E.g., it runs the Cavendish-KAIST Research Center with Cambridge University.

By 11:30 am we went to one of the student restaurants on campus to enjoy a Korean meal. We could choose from a large selection of side dishes. The staff members sat apart to further discuss things with local staff members and were also invited to a short campus tour. Points of interest were the very good campus book store and a large library. It is remarkable that many well-known English text books have been translated into Korean! Sometimes students can choose between English and Korean versions of a book, and strangely enough the local Korean versions tend to be cheaper!



After some free time the program continued at 1 o'clock with visits to three departments in the College of Natural Science. First came the physics department. We were welcomed by the chairman Soon-Chil Lee, but after a brief welcome he passed the word to two students. The department has both experimental and theoretical physicists. It has 27 professors (17 in experimental physics and 10 in theoretical physics), 16 postdocs, 10 research staff, 98 undergraduate students and 239 graduate students (master and PhD students). Areas of expertise include condensed matter physics, optics and photonics, plasma physics, high energy physics and complex systems. The plasma research center has access to a tokamak for nuclear fusion research. The department also has links with the Cavendish-KAIST Research Center mentioned before. In their first year, all students of the College of Natural Science follow a broad program including courses in mathematics, physics and chemistry. Most select their major after one year. Students opting for a physics major have only few required courses and lab classes in physics, but can build their own program from a large selection of optional courses. Students work hard: when asked how many hours per day they work, one student said that studying is really a full-time job, while another student misunderstood the question and said he only worked 4 hours a day. However, it turned out that that was the time spent on his homework, not including all lectures, lab classes etc. It is not uncommon for a student to wade through the building at 10 pm to work on a project, and courses start at 8 o'clock in the morning. We also met with a Dutch exchange student. The visit to the physics department was finished with a fruit reception.

Next was a visit to the Department of Biological Science. We were received by one of the professors in neuroscience who gave an introduction to the department. To show how much fun it is to study at KAIST, one of his first slides contained a picture from a trip which students in each grade make each semester. The department has 24 professors (3 in the medical fields, 4 in engineering, 6 in agriculture and 11 in biology). It receives about 300 million Korean won (240,000 EURO) of funding per year and per professor. The department has many key areas, including gene engineering (demonstrated by a video of a fearless mouse), neuroscience (working, e.g., on a treatment for Parkinson's disease) and tissue engineering. We also visited some of the labs in the department, including the main lab of the neuroscience group, the cell growth chamber and the plant growth chamber.

Finally, we visited the Division of Computer Science, responsible for the computer science education programme. The chair Key-Sun Choi welcomed us and then passed the word to one of the students. To introduce the division, a video was shown. KAIST claims to have the best computer science program in Korea. It is a fairly complete traditional computer science department, doing research into hardware and software, including diverse fields such as artificial intelligence, computer languages, computer graphics, databases and multimedia. The division offers a lot of facilities for its students. Students can hook up to wired and wireless networks. There are also several "student clubs", such as a Linux club and a club for operating system research. Conforming to the university policy, about 30% of the lectures are currently in English, but 4 years from now all courses will be lectured in English. We also got two research demo's. The first one was given by the artificial intelligence and pattern recognition lab. They demonstrated an application for text recognition where the text is written in the air using a mouse with gyroscopic sensors. This implies that all



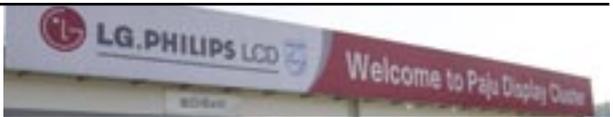
elements in the text are connected, which makes this application different from classical text recognition applications: in classical applications, the pen can be lifted and so the various lines in a single text symbol are disconnected. However, with the gyroscopic mouse this is not the case and the system has to discover which segments of the lines belong to the characters and which do not. A possible application is a remote control unit for television sets etc. to control the system with gestures, which should be more intuitive than a remote controller with tens of buttons. For the second demo, we walked over to the artificial intelligence and media lab. They demonstrated a robot with voice and face recognition applications, able to recognize gestures and emotions. It turned out that the software ran on a Windows embedded computer. It also became clear that the face recognition software has trouble with faces of West-Europeans as the system failed to distinguish between Duurt Johan and Erik. The quality and speed of the voice and image recognition needs some further improvements before this technology can be used in everyday life. Robots seem to be a hot topic in Korea as we got another robot demonstration at KIST on day 20.

After the visit to the computer science division, we left KAIST at about 3:45 pm. However, we got stuck in heavy traffic as we approached Seoul and only arrived home at 7:30 pm, after a long drive of three and a half hours, interrupted by a short 15-minute break. Most people didn't go too far for dinner as it was quite late already.

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## Friday, 27 April

*Ruben van der Hulst*



I woke up on the couch in the living-room of 'huisje 1'. Probably the question will arise in your head why that happened. As follows: At 4 o'clock in the morning I woke up due to a reason I can't recall, and Wicher was blowing through his nose like a monster, Gijs was lumberjacking wood like a maniac and Leo was snoring in a manner I never encountered before. After a few tries, the couch seemed a heavenly solution to this problem. So I took my pillow and blanket and sleeping went very well on the couch! After getting up, I started with the two usual white toasted buns with jam and a banana. Also taking a shower, shaving and dressing up in a suit were part of the morning ritual.

We all gathered at the main-house where we had to wait for 'mister-T'. Soon mister-T and for insiders Jong Seok Eijk, arrived and we took off in the bus where he gave a speech in a fabulous (sounds like Fabs :P) and very widely spoken language: mixed Dutch-English. It seemed that we were heading for a village called Paju, close to the DMZ. Once arrived on the scene, the bus driver and mister-T were not sure where to stop exactly, so we had a nice tour over the terrain. Finally at 10:40 am we had a presentation about LCD and LG.Philips in the Leadership Room. It seems that Korean people really like everything that has something to do with Leadership. While watching the presentation you could have learned that LG.Philips had a market share of 45% in the Korean LCD market and is producing generation 7 LCD screens now. If you are wondering what a generation 7 LCD







screen is: a 1950 x 2250 mm glass substrate. In short LG.Philips LCD-screens are bigger, slimmer and less power consuming!!! Really amazing :P.

After this nice presentation we went to the showroom where we could see the history of the television and also of LG.Philips. Especially the LCD-painting and LCD-window were very nice things to have in your living room (for not more than one week). After this the tour took us to the third floor of the P7 factory. In the hall of this floor we saw an amazing funny video of the production process of the glass substrates and the cleanroom where the substrates were produced almost fully automatically by using robotic arms. There were almost no people inside the cleanroom, except for two people that were cleaning the ground while advancing on a little mat. To impress us even more we visited the 'Success Tower' with a nice view over the park. Next we drove to the lunch! Being a typical Korean lunch we had the usual side-dishes and other Korean things. Also this maybe was the most luxurious lunch we had.

Now heading to Anyang, south-west of Seoul. Here, presentations were held about LG.Philips, In Plane Switching (IPS) (to improve the viewing angle of the displays) and multiple displays. If we had any questions about the working principles of the LCD screens we could ask them to Reinhard and Kurt, because the time of the engineers giving the presentations was very precious. Now, the drive back to the hostel could begin and lasted for a long time, because traffic is really jamming in Seoul around 5 o'clock. In the evening we had a really nice pulgogi diner in Hong-Dae with with Korean students who study Dutch. Some of us had some problems with the sitting on the ground thing, but that is just the way it goes. After this diner we went to the Starbucks for some coffee and then we went to a pub. Here we drunk some beer and ate some chicken before we went to the M2 and the NB. Entrance was W15,000 and one free drink was included. Being very hot and very, very crowded (especially in the NB) we went home late at night, another nice day gone by.

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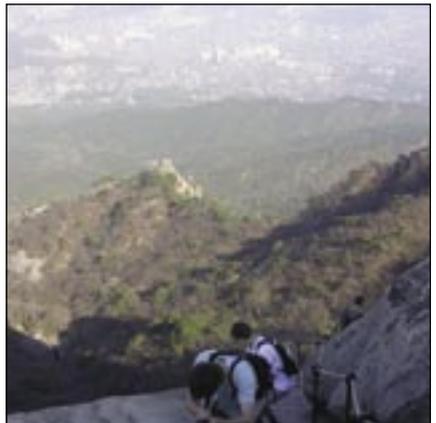
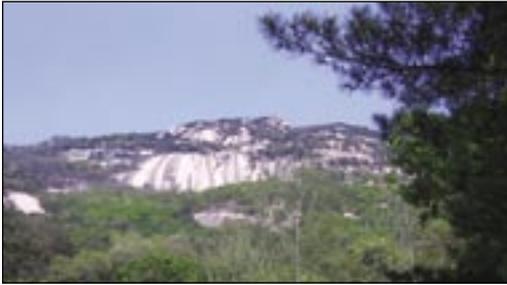
## Saturday, 28 April

*Corine Meinema*



A few weeks before the trip, the only possible day for the DMZ was the 28th of April: the day after Hong-Dae. And de committee was afraid that we had to leave the hostel too early (6 am). Happy for us, the program was changed and we had the free day after Hong-Dae. Everybody went his/her own way (but not alone) and because Femke was ill, Femke, Margriet, Samuel and I went to the Han river. It should be nearby but when we walked half an hour, we were back at the hostel. Sunny was so kind to to walk with us to the river (ten minutes) and there we just relaxed. People looked a little bit strange because we lay on the grass, enjoying the sun, but Asian people don't want to have a brown colour from the sun. After a few hours, Margriet, Samuel and I went to the Namdaemun market, where we buyed some souvenirs and we had a typical Korean meal: soup. It was the 3th time in three days that I had soup, but this time it was different from the others: it was 'mild spicy'.





Unfortunately for me, it was too hot. Thereafter we walked to a cocktail bar and drank a few delicious cocktails. When we went home by cab, Margriet forgot her souvenirs and it was an unhappy end of a beautiful day...

Other people went to the War museum: a museum about the Korean war (1950 - 1953), with a large collection of planes, cars, tanks etc. There were a few groups that went to markets or climbed the Bukhansan Mountain for a beautiful overview of Seoul. I think everybody had enjoyed his/her free day!

## Sunday, 29 April

*Natasja Sterenberg*



On Sunday we went to Insadong to visit the Jogyesa temple. This temple, first established in 1395, is located in the midst of the hectic Seoul metropolis. This is the place, where domestic as well as foreign visitors go to find peace and tranquillity and it is open to any lay Buddhist. Service is now on Sunday, because of the South-Koreans' busy lives. As our guide explained: "Religion is equal to people's lives." In order to enter the temple compound, we had to go through the One Pillar Gate (Iljumun). This is the first gate at the entrance. It was built with only two posts, which appear as one from the side. The gate represents the elimination of delusions and unity of mind, necessary for entering the Pure Land of a temple.

The first thing I noticed, coming through the gate, were the hundreds of colourful lanterns hanging on electric wires above the temple grounds. Prior to Buddha's Birthday (this year on May 24th), the temple place is filled with Lotus Lanterns, for the Lotus Lantern Festival. Walking further, I noticed a stand with behind it two women making wish lists for visitors of the temple. Our guide explained that the lists can carry people's names and the names of their loved ones, praying Buddha will look after their wellbeing. Eventually, such a wish list will be hung underneath one of the many lanterns.

I noticed that not all of the lanterns were coloured, but that there were rows of white ones too, at the northern side of the temple. The lanterns read: "Reborn in Nirvana". These lanterns were placed for the memory of the dead. Relatives of the deceased, may wish to place a tag bearing the name of their former loved ones and wish them well in their new life.

Once I arrived at the Main Buddha Hall (Daeungjeon), the ceremony already started. Outside I saw the many shoes, of all the people inside the temple. Some were put orderly in the therefore available closets. Inside the temple, there were three large wooden Buddha statues covered in gold. All people were singing and folding their hands, while facing the statues. In the front, stood a monk singing into a microphone. When the music stopped everybody sat down on their pillows. Then the monk left the temple and a new monk appeared and started the Sunday Dharma Talk. The whole ceremony was filmed with a



camera, so people in the building to the left of the temple (the Paradise Hall or Amitabha Buddha Hall), could also enjoy the service.

I was taken out of my concentration, when a man gestured some students not to stand or sit on the threshold of the temple. Apparently you should not step on the threshold of a Buddhist temple, but step over it, or you may trigger the wrath of the tenant spirits. If one does step on it, it is believed, he will experience troubles in the years to come.

After visiting the Jogyesa temple, we went to the Gyeongbokgung palace. A large and densely arranged complex of approximately 330 buildings, which was build in 1935. Unfortunately it was destroyed by fire during the Japanese invasion of 1592 and was reconstructed in 1865. When we arrived, we were just in time to watch the Changing of the Guards, in front of the palace. This spectacle was rung in by loud drum ruffles and was followed by typical Korean music, played by the guards, on typical Korean instruments. Other guards where holding big flags and they were all wearing colourful outfits.

When the show ended, we entered the Gyeongbokgung palace, to take a look at its beautiful coloured buildings. While doing so, we suddenly ran into a Dutch student from Groningen, who was doing his internship in South Korea. We were planning to climb the Bukhansan Mountain, and he was pleased to come with us. So, later that day, we went to Bukhansan Mountain. When we arrived, our group split up into several subgroups, based on hiking speed. I was in the slow group, because I wasn't planning on reaching the top and I wanted to enjoy the beautiful nature around me.

On the way we encountered many South Korean hikers, wearing professional hiking outfits. Some of them even laughed at my bare legs. We also saw many restaurants. Here hikers were sitting at low dining tables, with carpets underneath them, placed on the flat rocks of the mountain. After a while we decided to go downhill again. Almost at the bottom, we relaxed for a while on the rocks beside the extremely cold streaming mountain water. When it was close to dinnertime, some of us chose to go barbecuing at the bottom of the mountain, while others chose to order pizza. This ended a full packed cultural day.

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## Monday, 30 April

*Thijs Hollink*



After a rather long bus ride to Daejeong – during which many people caught up some sleep – we arrived at Pavonine's offices and test facility. We were welcomed by the president of the company, after which the overseas marketing director, Michael Petarus, continued with the rest of the program. Pavonine was founded as a company specialized in advanced and research intensive surface treatments. In 2002 the company refocused and started investing in the 3D monitor technology, for which it now uses the brand name Miracube. At this moment 3D monitors are a niche market, but one of the company's goals is making it into a mass product. They have the advantage of being dedicated to the development of the



technology, in contrast to the large multinationals, which mainly focus on traditional 2D monitor technology. Technically speaking, there are two fundamentally different 3D monitor technologies: glasses and non-glasses. Both technologies have in common that they work by displaying slightly different images on the odd and even columns of a LCD matrix, one meant for the left eye, and one for the right, similar to the way in which the left and right eye observe different images in the real 3D-world. For the glasses technology, Pavonine uses perpendicular linearly polarized glasses for both eyes. An alternating vertical and horizontal polarizing filter is placed in front of a standard LCD display, giving odd and even columns of the LCD matrix a different polarization, causing both eyes to see there 'own' image. The non-glasses technology used by Pavonine works with a so-called parallax barrier. A grid is placed in front of the LCD matrix, blocking light from half the columns. Different columns, and thus images, are observed from different angles and when the observer is in the proper position both right and left eyes observe their respective image properly, giving a 3D impression. Next to the displaying equipment Pavonine also produces content generation equipment, such as stereoscopic camera systems and 2D to 3D conversion software.

After the introduction of mr. Petarus we got demonstrations of several types of displays and content types, such as video games, 3D pictures and 3D animations, as well as a tour through the research lab. After the lunch in a nearby restaurant he showed us the 3D pictures that were made in the morning. We got a surprise present, namely a 3D display for our university, and the inevitable group picture was made.

After driving back to the hostel, we had a few hours break before we left to the Dutch Ambassador's residence for the annual Queen's Day reception. Of course, being real Dutchmen, we arrived half an hour early, so we made a short walk in the area first. Back at the residence we got in the queue to be welcomed by the ambassador mr. Heinsbroek, mrs. Heinsbroek and the deputy head of mission mrs. Luwema. Like Alices in Wonderland we entered in a mixture of the corps diplomatique, local Dutch nouveau-riches, Dutch expatriates and embassy employees. Until 10 PM we were lobbying for internships, jobs, and beds in expensive hotels, collecting business cards and enjoying the Dutch cuisine of 'bitterballen', 'kaassoufflés', herring and Heineken. At 10, when most guests had left, and the remains our group formed the majority of the party, we decided to leave to a local bar together with some embassy employees to have a few beers until half past one, when we took a taxi back to the guesthouse.

## Tuesday, 1 May

*Duurt Johan van der Hoek*



A forty minutes' bus drive brings us to a very cosy campus of Ajou University where on the face of one of the first buildings we see a large flag displays the text "Dynamic Tomorrow", characteristic for this forward looking university. The campus is located some twenty kilometers south of Seoul in the city of Suwon. In total a little less than 11,000 students are



studying at Ajou, 19% of which is female. Within a few decades Ajou aims to be a World Class University.

On arrival the Dean of the Science College introduced us to the city of Suwon, the Campus life and of course Ajou University and the Science College in particular with a slide show. We were very pleased to be offered the opportunity to give a short presentation ourselves about the University of Groningen. This had not happened before. Reinhard showed the audience the slides he had prepared a few days before at Kim's Guesthouse.

When this part was over some 'local' students took out the students to lunch and the two professors were given a special treatment. Lunch was followed by a campus tour led by one local student and a student from the Netherlands who is studying at Ajou.

After the tour our group was guided to the first out of two research labs we were to see that afternoon: the General Physics laboratory. Some of us were hoping to actually do a short experiment, as we were led to the tables with an air track containing a cart to perform a test for Newton's second law. The second lab, the Laboratory for Nano-processes and Measurements, showed an impressive set of experimental setups to be used by junior or senior physics majors. Advanced topics like Photolithography, Thermal Evaporation and several vapor deposition methods can be performed in this lab.

The last stage was a visit to the Center for Materials Characterization and Machining. Besides the students and staff members also industrial companies can make use of the very wide range of equipment that is present here.

## Wednesday, 2 May

*Samuel Hoekman Turkesteen*



### **"In front of them all."**

According to our programme, May 2nd was our day off. However due to a change of schedule we went to the Demilitarized Zone (DMZ). This zone is actually a piece of no man's land of four km wide and in the middle the demarcation line: 300 km of actual border.

I woke up at 09:30 am and as far as I remember I had a great sleep. My breakfast was, as it had been for the last two weeks, simple: tea and toast with strawberry marmalade. I got used to it. I took a short shower, washed my hair, brushed my teeth and finally I got dressed according to DMZ-regulations: blue jeans, sneakers and a T-shirt, nothing fancy though. There are strict regulations at the DMZ, so I later learned, because North Korea uses everything awkward about tourists and South Koreans as proganda against the west.

At 11 o'clock I got in the bus. We had a bus driver who was dispatched from the DMZ just like John Lee. John Lee was a Korean version of Elton John and our tour guide. Un-







fortunately his pronunciation of the spoken English language was a bit Korean so we had some trouble making sense of his words. However what he told was very funny to John because he giggled a lot. What I remember quite well, is that the streetlights on the left and right from the highway to the DMZ had specific design. It carried a symbol of South-Korea namely.

When we had arrived at the DMZ, sergeant Biscuit (Bisnett) shortly briefed us about not taking photographs. He also guided us to a special touristbriefing room. There we received another briefing which Biscuit memorized in eleven weeks. One breath and five minutes later Biscuit guided us to the Joint security area (JSA). I now forget to mention a watchpost from where a big-ass North-Korean flag was seeable. Near the DMZ, in the North, there is an industrial park. Between South and North Korea there is some kind of agreement: in the North there is cheap labour and the South supplies them with technology and money. Another 'weird' feature is the trainrail which had a testrun on May 17th. The idea is that there could be transport of goods and people between North and South Korea. This is awkward since North Korea prevents their people from going to the South and South does not want to welcome North Koreans. Going to another Korea is seen, by both Korea's, as an act of defection.

On our way to the JSA we drove through Pan Mun Jeom (freedom village). Only farmers who farm wealthy near the Demarcation Line and descendants of the original inhabitants live there. The village is a remainder of the Korean war. This village could not be divided so the Americans and the communists left it at the DMZ. There is some kind of policy that, on the long run, would render the village uninhabit. Current inhabitants only move and females are not allowed to move to the village.

When we arrived at the JSA an undefined grey feeling terrified me. The only thing I saw was a tall North Korean building with three Chinese signs. Biscuit again briefed us: not to act weird since this will be used as propaganda. He also explained that South Korean soldiers with big black helmets, mossgreen uniforms and big Ray-Ban sunglasses formed the first line of defense. They were dressed that way to scare North Koreans soldiers, Biscuit explained. We got a small tour to one of the cute blue houses on the border. In that house there was a Korean soldier of course on the Southern side. Personally I stood on the North Korean side! This was possible because the demarcation run trough the house. It was even possible to pose next to one these guarding soldiers! Outside we were watched by a North Korean officer. This is quite scary or at least it should be. But because of the high level of tourism on the South Korean side it's hard to take the DMZ and the millions of soldiers on both sides serious.

On our way to the touristshop, Biscuit insured us with a pleasant ride. He told some Chuck Norris jokes and other jokes. He even warned us he would tell these jokes if we would not ask him questions. This, of course, was a joke. Biscuit did end the tour with a very remarkable quote. He explained that besides Afghanistan the DMZ was one of the places where the situation was unstable (it is only relative stable) and since Camp Bonifas (the American camp) is the closest camp near the enemy (less then 100 m to a real enemy soldier!) Biscuit believes they truly are in front of them all.



# Thursday, 3 May

Anisa Salomons



We had the morning off, so we took that chance to do some souvenir hunting. The best place in Seoul to buy souvenirs is the district Insadong, near metro station Anguk. Apart from the few traditional shops there are many tourist shops that sell souvenirs, traditional clothing, very expensive tea, traditional paintings and calligraphy. Between those more traditional souvenirs, there is also a place for modern day Korean: keychain holders with a led display powered by solar cells.

The afternoon was spent at the Korea Institute of Science and Technology (KIST). We were in good company as also the vice-president of South Africa was present to pay a visit to the institute.

KIST was established in 1965 to help set up the Korean industry, especially in the automotive industry KIST has played an important role. In the subsequent years it merged with Korean Advanced Institute of Science into KAIST and later they separated again. The role of the institute nowadays is to play a pivotal role in national scientific projects and to become a top 10 international research institute by 2010. KIST does research in the following fields: future technology research division; material science and technology division; systems technology division; environment & process technology division, life sciences division. The institute has its own campus where most of the research is done; there is approximately 1,500 staff on the campus among which 100 to 150 foreigners. This number of foreigners is partly due to a branch office of the Pasteur institute that is located on the campus. KIST also has an European research department in Germany.

After the introductory speech the visit moved forward to the museum, where many technological achievements of the institute were on display. Memorable among the many technologies were the kimchi refrigerator, which displays the love Koreans have for this special dish. The refrigerator keeps the kimchi on the right temperature and humidity. Another interesting technology was the loud speaker that could produce sound without actually having a speaker. It is a thin sheet of some synthetic fibre, which was modified via some surface modification technique to produce piezoelectric polymers.

We had a tour at the intelligent robotics lab, where in cooperation with other universities and research institutes they worked on ambient technology and robotics that can be used in daily life. They have developed three robots: a walking, talking and thinking service robot called 'T-rot', a small robot Kebo that can walk and dance and face robot that makes facial expression in order to experiment with human friendly interaction. Finally the room itself is filled with cameras to observe the human behaviour in the room.

The T-rot is the main robot, in which many of the technologies developed in the smaller robots can be united. The robot can understand commands, for example it can bring a can of soda, the robot can recognize the can, move towards it, pick it up and finally pour the



can into a glass that you are holding. The T-rot has two microphone arrays the first has a bigger diameter and is geometrically optimized for sound detection, it can detect the direction of the sound source. The second array on top of the head can enhance voice data recognition and is optimized for noise filtering. The arms and hands have seven degrees of freedom. There is a laser scanner to detect the distance to objects and two wheels for movement that are easy to control. At the moment the robot is under development to improve it even more.

The visit ended with a lovely group picture in front of the building.

## Friday, 4 May

Jan Smit



On the 4th of May 2007 we went to Daejeon. This was one of the longest excursions of our Asia tour. The first time in Daejeon we visited KAIST, this time we were invited to ETRI (Electronics and Telecommunications Research Institute) and KAERI (Korean Atomic Energy Research Institute), or so we thought. Up to this day all appointments scheduled went flawless, but our contact at ETRI was abroad and forgot to tell her colleagues we would visit them. ETRI, however, managed this situation very professional and gave us a tour anyway. The tour started with a promotional video, which showed the impact of ETRI on the development of Korean technologies. After this introduction, the lady of ETRI, who spoke excellent English, showed us the recent developments in the exhibition hall. Among these was a robot with advanced person recognition software, which took aside from the facial features also the height of a person into account. Other products were digital actors (cheaper than hiring a lot of people when making large crowds in movies), a 3D movie theatre and a telephone that makes sounds and voices by applying vibrations to the skull. This can help some people with hearing problems. Another major interest was the so-called 'Digital Life', where every piece of furniture gets its own IP address and subsequently certain properties, like the temperature of the sofa, can then be controlled from a distance.

After a good lunch in downtown Daejeon, where some of the not so big fans of Korean food had fantastic Italian food and others had Chinese food, we went to KAERI. The KAERI tour started again with a video which showed the major research areas of KAERI. This included the design of nuclear power plants, for which KAERI developed the Korean standard. Also isotopes that have medical and industrial applications are produced. The tour ended with a quick glance at the 30 MW research reactor and the explanation of the history of research reactors at KAERI.

At 4 o'clock, we left Daejeon to go to Seoul again. Due to severe traffic, this took us more than four hours. After this everybody was exhausted and some went for a quick shower, while everybody was longing for a meal. During the evening everybody pursued their own particular interests, in which for some, the compound chemically known as  $C_2H_5OH$ , played a major role.



## Saturday, 5 May

Leo van Kampenhout



The day started off like any other day, with the only difference that we would travel by metro all day. Our first destination was Seodaemun Prison Museum, part of the Independence Park located in Seodaemun-gu, Seoul. The former prison was built by the Japanese invaders in 1907 to house Korean patriotic fighters that resisted against the Japanese occupation. After the end of the war in 1945, the prison was put in use by the Korean government until 1987, although there was no mention of this inside the museum. In 1992 the complex was transformed into a museum about the Japanese occupation.

I found Seodaemun Prison Museum a very disturbing place, and I am surely not alone in that opinion. The main focus of the museum is to show what horrors the Japanese did to Korean prisoners, who were consequently dubbed as "Patriotic Ancestors". On several places in the museum you are presented with scenes of torture, complete with screams of the victims and diabolic laughter of the Japanese soldiers. I don't think anyone of our group was expecting nor enjoying this rather disgusting exhibition. The Koreans themselves on the contrary seem to be quite interested. Surprising fact also that there were a lot of children around. The museum did not exactly look like a good place for children to me, but apparently the parents didn't mind. I wonder if the wounds of war will ever heal when you present children with this lively one-sided, nationalistic view of the Japanese. I found this quote of some student on the internet:

*"While we were touring the prison museum I asked Prof Lee if she is having fun (because she looked bored), she replies, I only have fun if there are Japanese students with me, then I show them what they did to us, no one hurt my Korean pride...no one".*

The next destination for the day was the Seoul Tower, the highest tower in the city, located on a small hill. We were hoping to go up the hill by cable cart, but there was a very long queue (probably because it was a Saturday with good weather). So we split up in several groups: some people went uphill by bus, some walked, and a few people joined the cable cart queue. The view from the tower was nice, but not overwhelming because of the smog, like in Taipei. Fortunately there were some shops to buy refreshments, and on the way back we stumbled upon a rather good break-dance performance. Then there was some spare time for shopping or sight-seeing the city. I went to Insa-dong in search for Seoul Selection, an English bookstore, only to find it closed due to Children's Day. The good thing was that we were already close to the theatre where we would go that evening. So enough time to relax in the park and enjoy the Hi-Seoul festival in front of the City Hall.

At 7:20 pm our party gathered again for a dance and music performance in the Chongdong Theater. The show was called "Korean Traditional Stage", and although my expectations were not that high (based on experiences with other traditional arts), I quite enjoyed it! The music was loud, but original and I believe traditional, and the way they occasionally



played simultaneously really impressed us. In my opinion, this was the ideal conclusion to a somewhat depressing and hot day.

A more extensive report about the Seodaemun Prison Museum can be found at: <http://muninn.net/blog/2005/06/seodaemun-prison-museum.html>

## Sunday, 6 May

*Anna Dinkla*



After a long week of 'official' study touring and sight-seeing on Saturday, we well deserved some rest at the island of Muuido. At 10 o'clock in the morning everybody (some more awake than others) was present and we were ready to go. The night before, after the traditional Korean show, most of us had gone to Hongik for some beers at the HO bar, to end with some karaoke at the noraebang... We quickly arrived at the ferry, were the shortest 30 minutes of our lives would start. Actually, the ferry pont that took our bus to Muuido only needed a few minutes to get to the other side. After having turned around on the boat, our bus driver impressed us even more on the steep narrow streets, while he was honking to warn ahead coming vehicles. Because of the steepness of the hills, stopping was no option, so we passed a stranded touring car. You could say our driver definitely passed the inclination test.

Around 11 o'clock we arrived at the beach. I was very happy there where more (and a little more clean) toilets than the first ones we found... The sandy beach was very nice, but we got some suprising looks from some Koreans. Apparently they don't like the beach that much that they would actually lie down in it and tan. Since it was low tide, we could walk to a small island (Silmido). On the other side of this island was another beautiful beach, were we could swim. An applause for the brave who did! I walked back before I even reached the small beach, because I was afraid my flipflops wouldn't survive the rocky surface. Also my skirt was not a typical island walking outfit, compared to the Korean ninja hiking clothes. When I arrived on the 'main' beach we went for a nice barbecue or korean pancake lunch.

Back in the city we had a great Jjimdak dinner (spicy cooked chicken platter) at Dae-hangno. It was a shame we hadn't been around this neighbourhood before, because it was a very lively place with lots of nicely styled places to eat and drink. The only problem was convincing the bartenders we didn't want anything to eat. Taking the last subway train, we went to Hongik. It was relatively quiet there on Sunday, so even though we planned on going some place else, we ended up at the HO bar again... Well, overall it was a very relaxing day that gave us that holiday feeling we thought we deserved!



# Monday, 7 May

*Else Starkenburg*



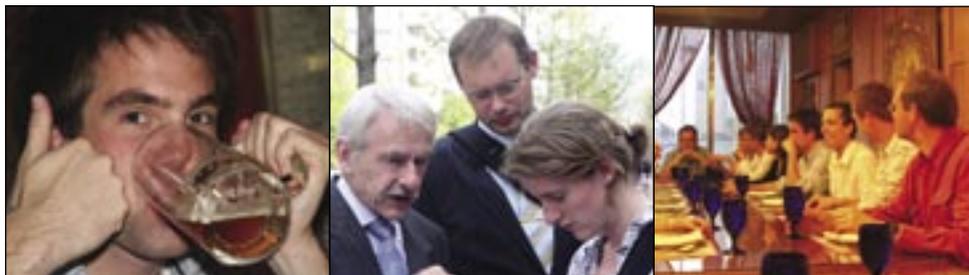
Our last regular day in Seoul starts for me with a relatively late breakfast. This morning we are free to do whatever we want, but we are told to meet in the bus at 1:00 pm. Bernadette and I choose to visit the rebuilt traditional Korean village Namsangol. This turns out to be a good choice, it's nice to see the old village and since it is just a small site we have plenty of time left for a relaxed lunch before we go back to the hostel. In the bus we discover not everyone had planned so well... but luckily we meet the missing persons later on at the campus; they took the subway to SNU.

At Seoul National University we get a short introduction of the college of natural sciences which was founded in 1946. The dean of the college, prof. Oh, gives us a warm welcome speech; he mentions that he has even visited the university of Groningen about 20 years ago. We soon learn that this university is indeed very prestigious. In the Times' top 100 of universities worldwide it was ranked number 93 and in the top 100 schools of science it even got a 45th place.

The group is then split into two to visit the school of mathematics or that of physics and astronomy depending on our own interests. At the school of physics and astronomy, the group I joined, we get an introduction from prof. Choi who shortly discusses three research highlights: projects of which the school is particularly proud. Of one project, about the vector field polarization on nano scale, we even get to visit the lab to see the experiment and get some further explanation. Other ambitious projects of this school involve building a dark matter detector looking for Cold Dark Matter particles and a sight for the research on neutrino's.

At the end of the tour we get to experience a way of teaching that is unique in Korea: Technology Enabled Active Learning (TEAL). In the classroom we visit the walls are filled with whiteboards and screens on which digital learning material or even one of the whiteboards themselves (which are recorded by cameras) can be displayed. Also many questions are displayed here during the lectures. The students can response interactively using their controller. In this way the teacher gets direct feedback on what is understood and what needs further explanation. This way of teaching, which was first developed at MIT, is making sure students can't be idle during the lectures. Although our group scores a 100% on the first basic physics question put, the second question is answered less easily. Clearly we still have a lot to learn ourselves!

Before going to Korea we heard that it is Korean tradition the oldest person in a group pays for dinner. On our last real evening together in Seoul Reinhard decided to go along with this tradition and treated us all on a great meal at a Thai restaurant! Together with a visit to a local pub, of which the owner had a few nice tricks up his sleeve, this is a wonderful conclusion of a very nice day.



## Tuesday, 8 May

Wim Ottjes



The last day in Seoul, the last chance to get a nice souvenir, visit that last museum or just relax at the hostel. But not for too long, the bus left at 3:00 pm for the airport. Once arrived at the airport everything went smooth and everybody got through the customs office without big problems. During the first flight from Seoul to Hong Kong we got a nice dinner, with kimchi!! Probably most people, just like me, left the kimchi for what it was (although kimchi is very healthy according to Health Magazine) and enjoyed the rest of the food while watching a very nice episode of Top Gear. Little before 11:00 pm we arrived in Hong Kong and we had one hour before the next flight would take us to the Netherlands. This flight, which lasted almost thirteen hours, was for most people the perfect opportunity to get some sleep. I imagine they dreamt about the many highlights of the trip.

To name a few of those starting with Taipei; the walk in the beautiful Yangmingshan Park where we were literally with our heads in the clouds, the nice people at the fake Dutch embassy in Taipei, Taipei 101 which is the highest building in the world or the lunch with Nobel prize winner (in chemistry) Yuan T. Lee. And in Seoul the big LG.Philips LCD factory, the DMZ (which is a zone of peace and unification according to the movie at the third infiltration tunnel), the drink at the home of the embassy on queens day, Muuido island and Seoul National university. Which one was the best is hard to say.

We should arrive at Schiphol at 6:45 am, but this took a little bit longer. Cause we had to wait a bit, we saw a little bit of the surroundings of Schiphol. At 7:00 am we did have a smooth landing.

Looking back I think we can say that it was a wonderful experience which we shared with a great group.





# Foundation GBE-FMF



## Some words from the Foundation GBE-FMF

*Klaas-Jan Stol*

I often hear people saying the years during your study are great, if not the best, years of one's life. It is a time in which you can acquire a lot of knowledge and experience, and in the Netherlands, it is a time associated with lots of spare time. Like the committee members of the study tours Nippon '01, ManeaX '03 and STARS '05, five people decided to spend a great deal of their spare time on organizing a study trip for twenty of their study mates.

The objective of the Foundation GBE-FMF is to organize a study tour every two years, to explore both the state of the art in science and the culture in a destination in another continent. Since 2001, the Foundation has continuously been able to find enthusiastic people to take on the huge task of organizing a three-week study tour to a destination outside of Europe.

The board of the Foundation consists of ex-committee members, who are the experts on this domain, and a representative of the board of the FMF, to which the Foundation is affiliated. Finding new people to take place in the board of the Foundation is not that hard; it is a great opportunity to feel some of the excitement of the new committee, the same excitement as we all had when organizing the trip ourselves. It is nice to realize what Great Times a committee will experience, once they get on that plane to a country unknown. I still can remember my own experiences I had only a few years ago very lively, and it has had a huge impact on my life ever since.

The Orange Tigers took a 'brute force' approach to organizing their study tour to South Korea and Taiwan. Although all of the Tigers' committee members were inexperienced, in that none of them had participated in an earlier study tour, they have done a superb piece of work. Instead of taking on the average student's approach of fooling around until there are really deadlines to be made, the Tigers started working hard right from the start without hesitation.

Asia is 'hot' these days. Everybody speaks and writes about the booming economics of countries such as China and India. Therefore, it is not strange that the Tigers chose to explore more of the Asian continent, after the successful tour STARS '05 to China and Malaysia, by visiting Taiwan and South Korea.

At this point I would express my gratitude, on behalf of the whole board of the Foundation GBE-FMF, to all people that have been involved with organizing the study tour Orange Tigers '07. Without the financial support of the University of Groningen and several foundations, which you can find listed in the financial overview, this trip could not have taken place. Special thanks also go out to the companies and institutes that offered the so-called 'case studies', of which you can read the case reports elsewhere in this report. I hope we can cooperate in the future. Last but not least a big thank-you goes out to each individual committee member, each of which has done a great effort to organize a fantastic study tour.

The Orange Tigers trip may be the last study tour organized in the current organization of both the FMF and the foundation GBE-FMF. The organization of the Faculty of Mathematics and Natural Sciences has made its first steps towards a so-called major/minor model. This model has practical consequences for the FMF and its future members. The FMF did not hesitate and wait for the future to come, but instead started a process of reorganization itself. Together with the students association for Chemistry, a new students association has been founded, which goes by the name 'Basic'. Furthermore, the University of Groningen has ruled that the departments of Computing Science and Artificial Intelligence will work in closer collaboration. The students association for Artificial Intelligence, in the mean time, has opened its doors for students of Computing Science. At the moment of writing, the major/minor model has not been fully implemented, and it is unclear whether it will ever be, and what the future of the FMF will be like. As the foundation is affiliated to the FMF, our future depends on the FMF.

Nevertheless, the foundation will do its utmost best to offer new study tours in the future for students of the beta faculty. Only by repeating our successes on a regular base is the foundation capable of passing on its rich body of experience to next generations to come. Luckily for us, organizational changes tend to take a long time. This allows us to adapt in time and at the same time offer the students of today a chance to organize or participate in the next study tour. I hereby invite new enthusiastic students to take place in the organization for 2009!

The board of the Foundation GBE-FMF consists of the following people:

Nanne Huiges	Chairman
Klaas-Jan Stol	Financial Controller
René Kist	Secretary
Peter Bosma	Advisor of the board of the FMF 2005/2006
Roel Tempelaar	Advisor of the board of the FMF 2006/2007

AMSTERDAM

NETHERLAND 8,571.04km

# Organization

LY 8,982.44km



## Report from the Mascot

OT

My time as an Orange Tiger started in the beginning of September. The five Tigers bought me as a prize of their contest in the FMF almanac 2006-2007. Luckily for me, the two who scored the best in the first round of the contest didn't take their second chance seriously, so the Tigers decided I could stay with them! And what a wonderful time began. We had a lots of meetings, dinners, drinks and GBE-weekends with a lot of fun and useful moments.

Very soon the moment of departure was there. I think I was the only participant who didn't have any stress at all with packing the luggage... one of the big advantages of having no clothes. But when everybody in the train kept staring at my naked body, I was happy the committee gave me my first garment. They even thought about that.

My first time of traveling was wonderful. I loved the train, the airplane, Schiphol Airport and the bus that brought us to our hostel after all those hours of traveling. Once in the hostel I was the luckiest man of the whole group. I don't know why, but the committee decided I could sleep at the committee girls' room. I never had a better place to sleep, although I stayed on the ground in Femke's suitcase for a very long time.



Besides that, my time in Taiwan was great! I had never been to this part of the world before and I really loved it! I have seen so many wonderful things! I have not visited a lot of companies, the biggest part of the program I laid on the ground of the room, but the cultural activities were great! First I climbed the mountains in Yangmingshan national park and bathed in a hot spring, after which I was completely relaxed again. I also visited the city centre and Pinglín, where we could swim. Unfortunately, I wasn't allowed to go to clubs at night, because you needed to have shoes to get in, but except for that Taiwan was great!

After nine days Taipei we left the city to visit Seoul. The first thing I noticed there was the cold, it looked like Dutch weather. Furthermore the city looked much more like a western city. Except for the Korean people, language and food there was nothing Asian there. But those two weeks were great too! Kasper brought me to some companies and the cultural days were great too! We visited temples, the Seoul tower and an island called Muuido. We had a lot of fun and I really enjoyed being the mascot of the group! Even now, while I am living at the sweet home of Femke and I share a bed with her every night, I miss the rest of the participants and the travelling. Luckily I can watch the video movies of Gijs and look at the pictures of Wim and Kurt every day!





## Report from the Chairman

*Margriet van der Wal*

Where should I start? Maybe it would be a good thing to start at the beginning. I believe I was skiing in France when a member of the board contacted me with the question whether I would like to organize the GBE for 2007. After some days of thinking I made my decision, I was ready to face a new challenge. Organizing a study trip to a distant country sounded very exciting to me.

Femke, Erik, Corine and Kasper probably shared this opinion. At our first meeting we divided tasks and I ended up as chairman of the party. A few meetings later we decided South Korea and Taiwan were the countries we wanted to visit and Orange Tigers '07 would become the name of our committee. From that moment on people called us 'the Tigers' and the more they called us like that, the more we felt like five tigers.



From the first moment on, when Kasper and Corine started to contact companies for casestudies, Femke phoned companies in South Korea and Taiwan in the early mornings and Erik made the planning of the budget, I recognized my fellow tigers were all very good in their task. Also later during the organization they surprised me over and over again. The moment on which they would make dramatical mistakes and I, as chairman, would have to interfere, stayed out. Besides the fact that the organization went very smooth, I learned to know my committee members better and we had a lot of fun with each other. During the weekly meetings we held, in which we discussed the organization of the trip, we all made a lot of stupid funny quotes. Too bad for me, they were all written down.

The month before we left was very exciting. Some days of the cultural and scientific program still had to be filled in, the final schedule with the bus companies had to be discussed, and the Survival Guide (the guide book which contained the program from day to day) had to be finished. That last month was an extremely busy month and also pretty exhausting. Then why couldn't I sleep the evening before we left? Of course I know the answer myself, I was too excited and couldn't think of anything else the night before April 14th.



Because an important task of a chairman is carrying the responsibility, I felt like I should always behave properly. Before the trip I was a little bit afraid, I would fail on that last point. Fortunately my fears didn't come true, except for one time when I frightened some fellow tigers coming out of the elevator in the middle of the night. As a consequence of that the other people that WERE sleeping, were awake in a start. "Oops!"

Looking back on the three and a half weeks in Taiwan and South Korea, some things that come up in my mind are: rice rice and rice, the refuse lorry playing the 'Für Elise', extremely nice people, the flowery green coach, the song 'let it be', the candy 'mentos', buying a Taiwanese dress, diarrhoea,



temples, DMZ, night markets, computer games on television, kimchi and a great group of people. Before the trip, I didn't know the other participants and staff very well, but during the trip I experienced they were a great group of people. Going to a distant destination is great, but going there with a great group of people is even better!

Organizing this study tour was a great experience. We visited a lot of interesting companies and learned to know the culture of the country pretty well in the weekends. During the trip it felt great to see that the program went as planned and everyone enjoyed themselves. A lot of people helped us in making Orange Tigers '07 a successful study trip. The people in Taiwan and South Korea were very helpful and kind. That is one of the things I think I will always remember.

Now, when the study trip is over and we checked this final report on spelling (and changed a hundred of times 'where' in were and nightmare in nightmare) it is time to study again...

The only thing left to say for me is: it was great! "Het was vet gaaf!"





## Report from the Treasurer

*Erik Duisterwinkel*

Why on earth should you ever want to organize a study trip to some-country-in-the-world-you-always-wanted-to-visit?! You can also just go there and... ehh... be there. Well that is maybe an exaggeration of my thoughts when someone asked me, at a monthly drink of the FMF, if I already thought of doing this. But something inside of me decided to talk to Klaas-Jan about this, he was the former treasurer of the committee which organized the trip to China and Malaysia. The whole night I talked with him about this previous study trip. He made me enthusiastic to become treasurer of the next committee, and told me that it was a great and unforgettable experience.

Hey, but wait, was my next mornings thought. I am studying, I am learning every day for the physics courses. If I organize this trip, I have to spend a lot of my valuable time on this. I can't put my study aside. I mean, that is why I am doing this study.

Several weeks after, the FMF organized a go-kart tournament. I had not much in common with the FMF, some of my friends did some committee work for the FMF, it were those friends who brought me to the FMF. I liked the FMF-people more and more. And at that evening at the go-kart tournament, I heard that three of my close friends were going to be in the GBE committee. In my head I already semi-rejected the GBE, because it would take too much time. The committee was not formed yet, and all of a sudden, there was a spark in my head which caused me to say: I want in the committee too. Losing valuable study time? Who cares!? You must take new challenges!

That 'loose-all-of-your-every-day-rituals-sense-and-go-for-new-adventures' spark in my head would change my whole life as a student.

This first tasks I had to do as treasurer was to make a planning of the budget and applying for subsidies. But those were not my only tasks, the committee consisted only of students in physics and mathematics. None of them were very good in making for example a website, committee logo, letterpaper etcetera. So I took these tasks on me, and I was very good in it, they said.

As a treasurer you do a lot of 'easy' things, write letters to potential subsidiaries with the planning of the budget, send invoices to companies which provide case studies, pay de-



posits on time, administrate all expenses and stuff like that. It is fun to do these things; if you do everything correct, there is no problem. But that was the problem, all of the financial issues were things I had never done before. With the help of the former treasurer and his documentation I was doing quite well in the beginning. The payment of the deposit for airplane tickets went smoothly and there was only a little problem with applying subsidies, nothing major. It was till the first foreign payment that everything was fun. Femke found nice hostels in Taiwan and South Korea and a deposit had to be made. Well, the payment arrived... after nearly two months of trying.

I have learned a lot from all financial things I have done. And looking back on all the problems, I think it were the issues which made the work even more interesting (except for the two month lasting payment). I became interested in the world of finance.

But the trip itself was of course the most important time. It is the moment of truth if you arranged everything correctly, and if not, find a solution to it as soon as possible. At the first day it already went wrong, I couldn't get enough money from the ATM. Luckily for us I still had the creditcard. After a phonecall home, the problem was solved. At a certain time in South Korea, I was walking the street with nine billion Won in my pocket which is over 7,000 euros. And the funny thing with Korean money is that the biggest bill is worth approximately eight euros. Imagine what that would have looked like ;)



All the hard work we did as committee payed off, not only the other group members enjoyed the trip, we also had a fantastic trip in Asia. One thing that will stay with me forever is the moment we stood ten meters away from border with North Korea, two kilometers after the South Limit Demilitarized Zone. It was the place you could see the propaganda vilage of North Korea, facing prominently the South Korean vilage, just one kilometer apart of each other, only a minefield and just some small white poles in between, and just a world of difference of political thoughts. Standing there, looking at the highest flag pole in the world in the middle of the most heavily guarded border in the world was probably the most impressive moment of my life.

The whole traject from the forming of the committee, the chosing of the countries and making up a name and logo to the moment I am writing these words with one and a half year of new experiences and a great trip in between, is a traject I would not have wanted to miss for anything in the world. I am proud of having walked this path, I am happy I walked this path next to four great people, I want to thank my fellow Tigers for walking the path next to me, each one ending up being one of my best friends.

Thanks





## Report from the Commissioner of Foreign Relations

*Femke van Seijen*

Groningen, July 1, 2007

Dear to who it may concern,

It is the eighth Sunday afternoon after the GBE. I know I am too late with writing this and I know we demanded from all of you to deliver us your report within two weeks after our return. But to think of an excuse anyway, it is very hard to summarize all the experiences of that wonderful trip in a few sentences. And it is even harder to summarize all the experiences during the organization in a few sentences too. But I want to give it a try...

One of the things I will never forget are the phone-calls to Taiwan and South Korea. The feelings of despair, because I thought I would never be able to organize enough visits to companies and institutes in those countries. But also the feelings of joy the moment I had a very nice conversation with a Korean or Taiwanese who did speak English well enough to understand my request.

The moment I got the fifth refusal from a hostel, because it couldn't accommodate 27 people, I started to panic a little. What if it wasn't possible to find a place to sleep for 27 people? What did I have to do? All my committee members did such a good job and I couldn't even arrange a hostel. I didn't want to think of the 26 days of program which had to be filled too. Luckily for me I found two nice hostels where we could sleep and even the program took shape a little bit.

But actually those moments of panic were nothing compared to my feelings the moment the second subscription was closed. We didn't have enough participants... What was wrong with all the students? Why were there only a few students who wanted to join our trip to Asia? Isn't that a once (or twice for some) in a lifetime experience? Apparently lots of people didn't think that way. But again we were lucky and we got our twenty participants.



Finally the moment of departure was there. From the beginning of the organization I expected I would be really stressed and nervous during the trip. I was actually quite relieved that I felt kind of relaxed waiting at the station for Corine to show up while she was twenty minutes too late. Although this wasn't a good example for our participants,



everybody got on time every day, which relieved me even more.

It was very nice to meet all the people I emailed or called with, to arrange a visit or to ask them for help with organizing some things. Thank you again! I was actually surprised that everything went that well, we were on time every visit and only once it looked like it would go wrong, but even that was solved. But the best memories I have, are of all the fun everybody had together. The group stayed together and there weren't subgroups who withdrew from the others. I have really enjoyed the GBE and that is mainly caused by all of you. I would have never expected you to be such a good company to travel with for more than three weeks. I have also loved working together with four amazing Tigers and I love it even more that we will be Tigers forever! We are still having fun together and that is maybe the greatest remnant of organizing this trip. I would really like to thank you all for being such wonderful Tigers!

Het was vet gaaf!

Love Femke





## Report from the Commissioner of Business Relations

*Kasper Duivenvoorden*

It was Christmas 2005 when I first heard of the GBE. I can't really remember who or what made me decide that I was capable of organizing a trip for 27 people to a country at least a few thousand miles away. It was probably when I heard that Corine and Femke were also joining the committee that I knew it was going to be great and that I couldn't take the risk of being out of this fun.

Okay, so I decided to join the committee. That was a bold action, but not the boldest one. It was a few weeks later when we were discussing the tasks of the committee when logic departed me. I told my fellow committee members that I certainly didn't want to be the commissioner of foreign relations. It would be too much responsibility for me. What if I wasn't capable of making a reasonable program? So in the end we all decided that I should be commissioner of business relations. Together with Corine I was going to start a quest for case studies. And something inside of me must have said: "Well, if we don't find them, still no problem. At least we didn't screw up the program". Nothing inside of me said: "Well if you don't find them, no money, no trip, no program, no fun...". It was only after our quest was completed that I accepted this logic. Looking back on it, the stress would probably have killed me if I did think a little ahead.

So around March 2006, more than a year before the big event, the work started. Why did I think making an information booklet would be the most difficult thing, why was I so naive. Okay, it was difficult. Searching the archives for proper examples of case studies, putting them together and... well actually that is



all there is to do. It is only after we finished the booklet that the hard part would begin: the search for people who are interested enough that it is worth sending them one. What we learned from former committees was that it was going to be a hard job finding these people, convincing that we offer BSc and MSc students, who not only are internationally orientated but who also are on the edge of starting a successful career (only not knowing where). But it turned out that these former committees had built up a network of contacts: many contacts who already knew the concept of case studies. So many contacts that another problem was beginning to emerge. How can you offer students when there are no students to offer? Meaning, we already had the case studies far before the trip started, far before students could decide if they could miss three weeks of Groningen to have three unforgettable weeks in Asia. But how could we ever have organized such an

unforgettable trip if we didn't find a solution to this minor problem.

So our big quest successfully came to an end when around Christmas 2006 the last few companies reacted enthusiastically on our ideas and offers. It was then that I thought my job was done, that I only had to make sure all the hardworking students were indeed working hard and that I only had to correct my stupid mistakes I made on my road learning how to write a proper e-mail. But also this thought was a naive one and it only lasted till the next meeting when I realized that organizing a trip



can't be done by the commissioner of foreign relations alone. In the last few months all five of us were working like horses to make it the best GBE ever. I made myself responsible for arranging transportation: writing more mails, actually calling to Korea and Taipei (who on earth invented time-zones!) , stressing that everything will go wrong once we get there, but being reassured by my fellow committee members. (I think this term doesn't give them enough honor, better to call them best friends and drinking mates, in other words Tigers!) And drinking my stress away with those Tigers on a Saturday night after a hard day of work.



It was only when we actually arrived in Taipei that I could say that some of that stress was beginning to diminish. After I was sure Jerry from the bus company understood me correctly when I asked for transportation from the airport to our hostel. After our first experience with the MRT (Mass Rapid Transport) in Taipei, and after finding out that buying a ticket isn't so hard after all, even if you can't speak Chinese. After knowing that everything was going to go right, I was relaxed enough to realize we were going to have a fabulous time. The moment when I felt: "this is why I worked my ass off for more than a year", was probably the best moment of the whole trip. At least, that was what I thought at that moment. But there was still more to come: Standing on top of the highest mountain in Seoul area and having a fantastic view over some of its suburbs. Standing on the boarder of North and South Korea and watching a communist in the eyes. Looking at some of the most high-tech facilities at the LG.Philips factory in Paju. Karaoke with the whole group. And in the end, drinking a Baileys on our flight back to Amsterdam, while nearly everybody else was sleeping, and looking back at what might be the best three weeks of my life.





## Report from the Commissioner of Business Relations

*Corine Meinema*

When the foundation was looking for a committee and I saw the posters hanging everywhere, I thought by myself: I want to go with the GBE! But the only way to go was by organizing it, because I did not have enough ECTS. And I thought it would be a lot of fun to organize it! I knew that Femke and Kasper had the ambitions to organise it too and I was surprised by Erik and Margriet. Five second-year students in not the easiest committee! Commissioner of business relations was the function I wanted to be, because it was a well-defined function and I did not want to speak in English to people (my English is very bad).

The first months of searching companies was a succes, before the summer holiday we had found a few! But after the summer holiday, it



was hard to find the last ones. It was a relief that we had found the last one in January and I thought my job was done: I only have to look at the people to do their casestudy. But then the real work began: making a program book, finding information of the days and all other things that had to be done. One of my jobs was to make a reservation for a restaurant with a look over the skyline of Taipei (a tip of Carlo). I was a little nervous because my English is not the best but when I tried to call the restaurant, I could not understand anything! And the girl did not understand that I wanted to reserve for 27 people: I repeated twen-ty-se-ven for at least ten times but when I said three times nine, she understood (oooh, you mean twenty-seven!). I was so happy that this was my only call to Taiwan or South Korea!

In the last months there was a lot of work, but the time passed quickly and before I realised, it was April 14th and we were going!

Finally, the three weeks we worked for, began and everything was great! The people were friendly, the temples were typical Asian, the food was, eeuh, different. It was

fantastic to walk in the streets of the cities we chose and to see a lot of the Asian culture. There was a lot of difference between Taipei and Seoul, what I didn't expect before the trip.

There were no big mistakes in the organization and after the trip I am looking back with good feelings. It was indeed a lot of 'fun' to organize the trip (although not everything is done at the moment).



# Scientific Staff



## Impressions from Reinhard Morgenstern

There we are again in a weird situation: our group, several students and two professors – all properly dressed up for a visit of the Dutch embassy in Seoul – surrounded by a crowd of Korean school kids who came to visit the kings palaces near the Dutch embassy. We were somewhat early for our visit and therefore took the chance to look at the palaces as well, but now we seem to be the most interesting attraction for the little girls, who see a chance to practice their English. When they hear that we are from the Netherlands, they are convinced that we are all friends of Guus Hiddink, the soccer coach, under whose supervision the South Korean team during the world championship reached the semi-finals, and who therefore is well known and regarded as a hero by really everybody in South Korea. So the little girls want to get our signatures! I never in my life signed so many papers at a time.

Of course in that type of environment it is easy to give a good impression. But did we succeed to do so at the more relevant occasions? Sure enough! Just take the reception at 'Koninginnedag' to which the Dutch ambassador had invited us. There you can meet high rank representatives of important national and international companies, diplomats and ambassadors of various countries and Dutch people who for various reasons are in Seoul. Quickly our group was aware of the rule of the game: try to get into contact with a lot of people, preferably those who might be useful for you in the future. We spread out in small groups, occasionally share interesting information and experiences, and indeed succeed to talk to a lot of interesting people. The director of the Seoul Hilton hotel nearly offers us to stay the remaining days in his hotel for the price of our guest house, because he regards this as more appropriate for such a select company as we are. It is only after he realizes that there are 27 of us, that he gets second thoughts and prefers to disappoint us. We on the other hand have to disappoint the chairman of the 'Hendrik Hamel Vereniging' who tries to find sponsors for the erection of a 'Hendrik Hamel House' in Leiden. In that connection you have to realize that in South Korea Hendrik Hamel – next to Guus Hiddink – is the second really famous Dutchman. After having suffered shipwreck on his journey to Japan in 1653 he stranded in South Korea and was kept there. After his escape in 1666 he wrote a small booklet about the (sometimes horrifying) affairs in that country, which is still used in schools as a source of Korean history.

Such 'cultural activities' were certainly not the most important goals of our trip. But also regarding science we have presumably left a good impression for our hosts. Every time the student responsible for the day knew the details of the program and could supply information about that, and moreover was aware of the fact, that he or she was regarded to come with questions after the hosts' presentations in order to initiate and stimulate a lively discussion – not always an easy task, especially when the hosts had only given a general PR presentation instead of information relevant for us. On the other hand we were also taken very seriously by our hosts, indicating that our organizing committee had done a very good job. At the Chinese Academy of Science in Taipei e.g. its director (Nobel price laureate Yuan Lee) had – in addition to the scientific visits at the physics and the information science departments – arranged a lunch together with us and selected scientists and students from



the Academy to promote further discussions. In one case the enthusiasm and the felt competence of our group was even generously rewarded: the company 'Dimen' that develops and produces 3D television- and computer-screens, donated one of their advanced LCD screens to us after we could confirm, that we would make good use of it (in fact it is now placed at the information science group of Prof. J. Roerdink here in Groningen).

Occasionally our role and importance has possibly even been overestimated by the hosts: after our visit at the National Central University of Taipei e.g. we realized, that the hosts probably had believed that we came as an official delegation from Groningen University in order to discuss a possible partnership with the National Central University. So we felt a little bit like swindlers.

Now the most important question: what could we and what did we gain from this extended excursion to Taiwan and South Korea? Purely scientifically it would have been much more efficient to stay at home and use the time to look at e.g. the homepages of the various host institutions or to read their publications. Visiting e.g. a software company which produces computer games, and actually seeing a large hall with several tens of programmers who are busy to modulate the motion of a face or of a hand holding a sword or a gun: is that really worth the effort? On the other hand: to get an idea about what the motivations of the people are, what makes them enthusiastic and to get a feeling for their priorities – for that you have to meet them personally. Also some universities and research institutes had prepared convincing presentations with good information about their goals and the methods they apply to achieve excellence.

And of course you see the environment and the conditions under which the people are functioning. Especially in Taipei I felt a large discrepancy between the circumstances under which most people live privately on the one hand and function professionally on the other hand: small apartments in dirty and crowded houses privately, commuting on old scooters through rainy weather and heavy traffic to work, but there showing up properly dressed and dedicated to their work.

To some extent we adjusted ourselves to that pattern: without major difficulties our group handled the problem of being squeezed on the very limited space of a guesthouse for three weeks. If we forget about some hygienic problems in one place, which were probably responsible for the fact that at one occasion not every student could participate in the program, this 'living close together' had even its positive aspects: social life was promoted and at the end of the trip a positive groups feeling had developed.

What could one recommend for future excursions? First of all try again and again to communicate to the hosts what kind of information is interesting for the group. I know that in our case the organizing committee has indeed tried its best to do so – and nevertheless in some cases only standardized PR talks were presented. On the other hand we should be prepared to give relevant information about ourselves. A ten minute power point presentation on a memory stick with a few additional slides for adjustment or extension would certainly be useful. In one case we were in fact asked to present our Science Faculty. Having been a member of the faculty board for four years it was obviously my task to do so, and



having access to a computer in the guesthouse it was not a real problem to bring something reasonable on my memory stick. However, being prepared for that can not harm.

Finally: can such a trip be concentrated to a shorter period? For members of the scientific staff it is difficult to stay away from Groningen for three weeks or even more during the semester. In the past I had regularly to say 'no' when students had asked me to join the journey. I am happy that this time I could come – just after my official retirement. The social activities like e.g. the hike and the hot bath in the mountains of Yangminshan Park near Taipei, the hike in the mountains near Seoul or the theatre and museum visits give you a feeling of the country. After all we got good impressions of two countries with highly motivated people who are driven by an optimistic view of their future. I believe that at least some of us have become infected by this optimism.

It was not only an extended excursion, it really was a great excursion.

## Impressions from Kurt Lust

Already in the middle of September, the organisation of the GBE study trip to Taiwan and South Korea asked me if I was interested in joining as a staff member. I couldn't immediately say yes, but had to discuss this with our education coordinator Ena Tiesinga since I would be unable to correct two exams on time. She went on the trip to China and Malaysia two years ago and could only advise me to go. The exams were no problem if I would inform the students in advance that their results would be late. And since I had a heavy teaching load in the two course blocks before the trip, I decided that I could use a change of atmosphere and so after a week or so I agreed to join the trip. Ena also told me that in fact the program of such a trip can be quite busy, but the students organise everything with near perfection and the duties of the staff are rather limited.

In November, there was a first meeting with the other participants in a pub in Groningen to get to know each other. This was followed by workshops in January and February to learn more about the culture of South Korea and Taiwan, and two weeks before the trip there was a last meeting to discuss the program. Though the program booklet could not be printed in time, it was an impressive piece to read through and it confirmed that the organisation would indeed be OK. The program was already worked out in great detail. The date of departure approached quickly, and I still had to arrange quite a number of things before I could leave...

On Saturday morning April 14 we gathered at the central train station of Groningen to take the train to Schiphol Airport. The NS got us to Schiphol more or less on time, a rarity these days, and the flight with Cathay Pacific also passed without problems. There was a choice between Western and Chinese dishes for the meal, and the first contact with a Chinese-style breakfast was a bit disappointing for some. But a "seafood-gumbo" for breakfast is indeed not something that our Western stomachs are used to. We arrived on schedule in



Hong Kong and later in Taipei, where a coach decorated with flowers was waiting for us.

The 10-day program in Taiwan was filled with scientific and cultural activities. We visited temples in Taipei, the Chiang Kai-Shek memorial hall, and Taipei 101, the tallest building in the world, went to Chinese-style theatre, but also left the city to hike in the nearby Yangmingshan National Park, visit the Pinglin Tea museum, bathe in a river or visit a Chinese-style natural hotwater bath house (of which there are many in the countryside since Taiwan is located right on the "Pacific Ring of Fire"). As scientific activities, we visited the Hsinchu Science Park, the ITRI and Academia Sinica research institutes (the former more oriented towards industry, the latter more towards academic research), but also universities (National Central University and National Chengchi University), the Taiwan branch of Deloitte and the Netherlands Trade and Investment Office (pretty much an embassy in disguise). Taiwan offers a very diverse choice of dining options, and we also discovered some of the night life of Taipei. Though not everybody in Taiwan speaks English, most of the younger people do and many restaurants also had English copies of the menu. If not, they just grabbed a local from the street to help us out. Taipei also has a very nice mix of Chinese and Western culture. In general, Taiwanese people were very helpful and the stay in Taiwan was very pleasant.

The second part of the trip was a 14 day stay in Seoul, the capital of South Korea and one of the largest cities in the world. In South Korea, we visited four universities (KAIST, KIST, Ajou and Seoul National University), two research institutes (ETRI and KAERI) and some companies (the gaming company Gravity, the 3D display manufacturer Dimen and the LG.Philips LCD plant). But there was also plenty of time for cultural activities such as a tour around the Demilitarized Zone, visits to palaces and temples in Seoul, a Korean music night or taking part in the Seoul night life. I also went hiking in Bhukansan National Park and we spent a day on the beach of the island Muuido. It was also my first Queen's day ever on Dutch bottom, celebrated at the Dutch embassy. One of the downsides of South Korea is the poor knowledge of English. They excused themselves by pointing out that English and Korean are two totally different languages, but in fact the same holds for Taiwan and there people do manage to get a good working knowledge of English. Ordering food was often a gamble: you point to a number on the menu, but you don't know what you will get or if you will like it. And there was probably not such a large selection of non-local cuisine as in Taipei. However, when it comes to the atmosphere of the city, Seoul is probably even more westernised than Taipei. In Taipei, there were lots of old neighbourhoods left, but Seoul was clearly a very young city. Many old neighbourhoods were "redeveloped" with twelve story high living blocks. In between the apartment blocks and office buildings, some old temples and large palaces were the sole remainders of a very different past.

Having staff members on the trip was clearly important for the contacts with the universities. This was even more true in South Korea than in Taiwan. In the South Korean society, people show a lot of respect for the elder, which made my life as the younger of the two staff members really easy. Some South Koreans could even hardly believe that students could organise such a trip! Beside our representative function, our duties were very limited. Our main task was probably helping the students discover the differences between



the Taiwanese and South Korean education systems and the Dutch one. The Taiwanese and South Korean systems are really based on the American system, with a 4-year bachelor program followed by a master and Ph.D. As the basic university education is already four years, getting a master is probably less important than it is over here. Universities are also not considered equal. Instead, rankings are very important. By asking well chosen questions, we could help the students to discover the differences, but it must be said that the students were very capable to come up with very good questions themselves.

One thing that could have been better was the scientific content of some of the visits. At too many places, the talks were too much PR-oriented or just overview talks with a rather low scientific content. However, there were some good examples also. E.g, at LG.Philips, we visited the clean rooms and went to the demo hall, but in the research center we also got a more technical presentation which explained the differences between two types of LCD panels used in television sets. There should have been more talks that concentrate on one particular technology or one particular research project, and go into more detail. Even though the group of students is very diverse, past experience has shown that such talks are also appreciated. Mathematics was also largely missing from the program. In my opinion, this shows one of the main problems that many mathematics departments are struggling with: They fail or do not want to do the effort to present their work in a way that people from other fields can actually understand why the work is valuable and how it can be of use to them. Mathematicians are probably the worst salespeople in the world.

It became very clear to me from this excursion that Taiwan and South Korea are two countries that have gone through a very rapid evolution in the past quarter century. From agricultural economies, they have first become manufacturing powerhouses but are now already rapidly transforming into knowledge-driven economies since salaries have become too high to compete with some other South-east-Asian countries on simple manufacturing jobs and since there are simply not enough people to do the work. They are no longer just imitating Western products, but they have become innovators, capable of coming up with good ideas for new products and realising those products by themselves, without having to rely on a Western partner for the core technology. As such, they pose a danger to our Western-European economies. Our politicians talk a lot about rebuilding our economies on the basis of knowledge, but even in that market we will have to compete globally as Taiwan and South Korea are quickly doing just that. Taiwan may be in an even better position than South Korea in that respect. The poor knowledge of English in South Korea, the culture of accepting what an elder person says, even if you have a very different opinion, and the more closed society (there is very little diversity in the South Korean society) may limit the progress they can make. Moreover, they clearly have a better understanding of the demands of the Asian markets than of the European markets. From discussions with Dutch exchange students in South Korea, it became clear that the Korean education system also needs to further improve. Whether this is also the case in Taiwan, is less clear to me. It will definitely take some time for the Taiwanese and South Korean societies to absorb all the changes of the past 30 years, but after that, they can only become even stronger competitors in the world economy!



# Financial Report



This section contains the financial report of the study tour. It consists of two parts; the first is the balance sheet, containing an overview of assets and liabilities of the foundation GBE-FMF. The second part contains the settlement, with an overview of revenues and expenditures.

A few remarks on the balance sheet can be made. Firstly, in the past the choice was made to have a reservation of two case study. As it is very hard to arrange for enough case studies, this reservation can be used by the next committees that will organize a foreign study tour. It should be noted, that the foundation is not planning on increasing reservations for case studies, but targets a reservations of one or two reservations only.

Secondly, the foundation decided some amount of money should be reserved for the computers that it is using. The foundation is allowed to use the computer of the FMF. However, as computers get older, it is necessary to invest in a new computer. This way, we can ensure enough available work places for the next committee.

Finally, an amount of money must be reserved for the organization of the foundation. This is to pay costs such as banking costs and memberships. This money may also be used in a possible re-organization of the foundation, due to the re-organization of the Faculty of Physics and Natural sciences.

Also on the settlement a few remarks can be made.

The RSP Technology case study was done using a voucher provided by TCNN with a value of 2,100 EUR.

The case costs are the costs for participants to travel once or twice to the company at which they do a case study.

The transportation in Taiwan was significantly cheaper than first expected.

Initially a stay in South Korea for twelve days was planned, due to the plane tickets we stayed in South Korean for two more days.

## Balance

*November 1, 2007*

*All numbers are in euros and rounded to 1 euro*

<b>Assets</b>		<b>Liabilities</b>	
Bank	7.712	Reservation foundation	812
		Reservation computers	200
		Reservation case studies	6.700
<b>Total</b>	<b>7.712</b>	<b>Total</b>	<b>7.712</b>

# Settlement

November 1, 2007

All numbers are in euros and rounded to 1 euro

## Revenues

<b>Case studies</b>		<b>34.400</b>
Thales Nederland	6.800	
Deloitte	6.800	
Microsoft Nederland	5.100	
Nederlandse Aardolie Maatschappij (NAM)	3.400	
UOCG	3.400	
WL Delft Hydraulics	3.400	
RSP Technology	2.100	
Hi-Light	1.700	
Universiteitsbibliotheek	1.700	
<b>Participants contribution</b>		<b>25.440</b>
Students	22.640	
Scientific staff	2.800	
<b>Subsidies</b>		<b>11.360</b>
RuG - Faculty of Mathematics and Natural Sciences	2.500	
RuG - Department of Physics and Applied Physics	1.200	
RuG - Department of Computer Science	1.050	
RuG - Department of Mathematics	550	
RuG - Department of Astronomy	400	
RuG - Kernfysisch Versneller Instituut (KVI)	500	
The Netherlands' Physical Society (NNV)	1.800	
FMF	1.360	
Foundation Fundamenteel Onderzoek der Materie (FOM)	750	
Foundation Groninger Universiteitsfonds (GUF)	500	
Space Research Organization Netherlands	500	
KIVI-NIRIA	250	
<b>Miscellaneous</b>		<b>66</b>
Interest	66	
<b>Total</b>		<b>71.266</b>

## Expenditures

<b>Organization</b>		<b>5.707</b>
Participant meetings	677	
Banking costs	468	
Representation	392	
Case costs	351	
Gifts	248	
Vaccinations	3.127	
Committee	255	
Miscellaneous	187	
<b>Printing costs</b>		<b>2.883</b>
Final report	2.319	
Letter paper	140	
Miscellaneous	423	
<b>Transportation</b>		<b>34.909</b>
Plane tickets	29.100	
Travel expenditures Taiwan	1.429	
Travel expenditures South Korea	3.748	
Train Groningen-Schiphol	632	
<b>Stay in Taiwan</b>		<b>9.868</b>
Hostels	3.206	
Meals	5.165	
Excursions	1.020	
Guides	426	
Mobile phone	51	
<b>Stay in South Korea</b>		<b>16.595</b>
Hostels	4.651	
Meals	8.094	
Excursions	3.729	
Mobile phone	121	
<b>Miscellaneous</b>		<b>1.304</b>
Restitutions subsidies	1.000	
Write-off computers	200	
Reservation foundation GBE-FMF	104	
<b>Total</b>		<b>71.266</b>

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- Peter Bosma
- Roel Tempelaar
- Anisa Salomons

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- Dr. Hans Heinsbroek
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- Prof. Dr. F. Zwarts
- Prof. Dr. J. Knoester
- Prof. Dr. M.N. Harakeh
- Dhr. G.J. Kleisterlee
- Drs. Jacq. Wallage

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- Faculty of Mathematics and Natural Sciences
- Department of Physics
- Department of Astronomy
- Department of Mathematics
- Department of Computer Science
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- Foundation Groninger Universiteitsfonds (GUF)
- Space Research Organization Netherlands (SRON)
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- Prof. dr. R.F. Peletier
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- Sofia
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- Austin Paich (volunteer)
- Kuo (bus driver)
- Jerry Shieh (Evergreen)
- Kelly Chien (NCU)
- Ariel Lin (NTIO)
- Dual Wu (NTIO)
- Jenny Huang (Deloitte)
- Tsai-Yen Li (IM-Lab)
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- Valerie Chen (Hsinchu Science Park)
- Monica Chia (ITRI)
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- Dr. Chao-Han Liu (vice president Academia Sinica)
- Dr. Yuan-Tseh Lee
- Anna Stiggelbout

### **Contacts abroad - South Korea**

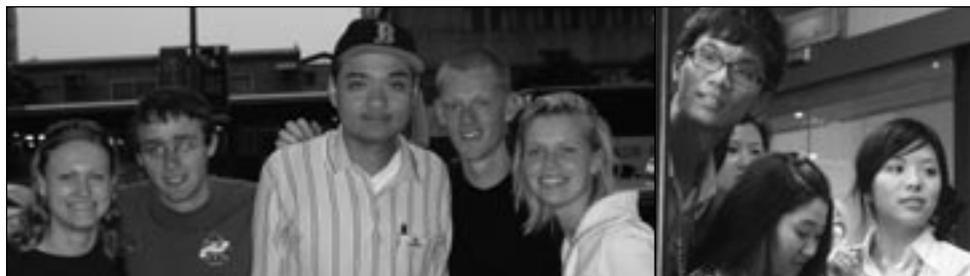
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- Mr. Kim (bus driver)
- Christine Cheong (Holliday Travel)
- Ji-Sol (interpreter)



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"I stuck the "FMF" logo on my lovely motorcycle.  
COOL!" - *Elena, Volunteer*



“Hope you guys all enjoy it. It’s such a great honor  
to have you here and be your friend”  
- *Austin, Volunteer*



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### Committee Orange Tigers '07

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“Het was vet gaaf”