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RESEARCH NETWORKS FOR THE KNOWLEDGE- BASED ECONOMY



THEODIUS LENNON

The Marie Curie Host Fellowships are an ongoing source of pride and satisfaction for us here at the Directorate-General for Research. Helping to launch research careers, mobilising expertise and consolidating research structures, the activities supported through these fellowships have created a fount of knowledge that is instrumental in meeting not only the aspirations of our youth, but also the aims of the European Union as a whole.

The ambitious research conducted under the Host Fellowships is contributing directly to the goals outlined in the Lisbon Strategy: as dedicated members of the research community, Marie Curie hosts and fellows are helping to forge Europe into the most dynamic and competitive knowledge-based economy in the world.

Effective as they are, the Host Fellowships are but one of the EU's many Marie Curie Actions, whose continued success translates into even greater recognition under the Seventh Framework Programme (FP7). The nature of the Actions remains fundamentally unchanged.

Their scope, however, has been redesigned in order to sharpen their profiles. At an organisational level, this means for example that the Research Training Networks (RTNs) and the Early Stage Research Training (EST) programmes have been merged into Initial Training Networks (ITNs).

This redefinition allows for individual actions to be better focused, as well as for increased participation by industry. And, just as importantly, the international dimension has been enhanced, making it much easier to involve participants from third countries.

In view of the success and the clear benefits of the Marie Curie Actions to date, their funding under FP7 has increased considerably compared to the Sixth Framework Programme. Consequently, the scope of eligible projects has also expanded. New features include the co-funding mode and the international staff exchange scheme due to start in 2008.

Regardless of their specific focus, all projects share four core objectives:

creation of a competitive and attractive Europe for researchers; removal of obstacles to create conditions where researchers can be truly mobile; enhancement of the status and attractiveness of a career in Europe, and finally, financing for researchers' training, mobility and career development.

I am proud to preface this year's edition of the Marie Curie Host Fellowships brochure, which showcases some of our favourite recent success stories. However, in presenting this brief selection, we can only skim the surface of one of the EU's most successful schemes.

A handwritten signature in black ink, reading 'Theodius Lennon'.

Theodius Lennon, Director
Directorate T: Implementation of
activities to outsource
Directorate-General for Research

KEY FIGURES: HOST FELLOWSHIPS UNDER FP6

Total number of projects	544
Total amount of funding	€ 502 million
Early Stage Training (EST)	€ 327 million
Transfer of Knowledge (TOK)	€ 175 million
Total duration of fellowships funded	5 500 years of researcher training, 2 200 years of postdoc support

Source: Contract monitoring analysis of Marie Curie Host Fellowships (EST and TOK) in the Sixth Framework Programme, DG Research working document, August 2006

INVESTING IN RESEARCH, INVESTING IN RESEARCHERS

The Marie Curie Host Fellowship Actions are a cornerstone of the European Union's measures to promote excellence in research. They enable researchers at the beginning of their careers to train at leading facilities and to establish the networks that will sustain their work for years to come. They also facilitate the transfer of knowledge between academic and industrial partners, or between leading and less-favoured regions.

In 1891, after years of scrimping and saving, a young Polish private tutor followed her dream of studying science from Warsaw to Paris, and to the Sorbonne. Brilliantly gifted and deeply committed to her studies, Maria Skłodowska proceeded against all odds to become this prestigious university's first female professor and the world's first twice-honoured Nobel laureate — in two different sciences, at that. Would the future Madame Curie have been gratified to hear that her example would inspire fledgling scientists for generations to come?

Fast forward some 120 years. A great deal is being done at regional, national and European level to smooth the path for future Nobel Prize winners. The EU has developed powerful mechanisms to support research and researchers, recognising their crucial role in building the knowledge society to which Europe aspires, improving lives both within its borders and beyond, and securing its competitive advantage for the future.

One of these support mechanisms, aptly named for Marie Curie, provides for actions promoting training, mobility and career development opportunities regardless of age, experience, nationality or other factors of discrimination. It is one of the EU's most prominent contributions to consolidating the European Research Area.

The Marie Curie Actions notably back individual fellowships enabling postdoc researchers to transfer to another European institution, typically for a duration of two years. Another strand encourages academic institutions or businesses — the so-

called 'hosts' — to offer fellowships and enhance their research and training structures. Under the Sixth Framework Programme (FP6), which ran from 2000 to 2006, this possibility translated into generous financial support for Research Training Networks (RTNs) enabling researchers to extend their scope by joining leading international research teams in another country, Early Stage Training (EST) sites striving to optimise the opportunities available to budding researchers, and projects improving the Transfer of Knowledge between industry and academia (TOK-IAP) or leading and lagging regions (TOK-DEV). The TOK actions can, for example, assist businesses looking to secure research input to fine-tune their products and processes, or assist less-favoured regions with capacity building.

These fellowship schemes may be organised by a single contractor or by several organisations cooperating in a multi-site project. They may involve a single fellow, or open doors for over a hundred. They may potentially investigate any area of science which seems promising to the host. While eligibility criteria

exist, the Marie Curie Actions do not predefine themes and thus give applicants ample leeway in shaping their projects. The application and management procedures are specifically designed to limit red tape, helping beneficiaries to focus on their objectives rather than on paperwork.

This publication showcases 14 recent projects which, together, reflect the full depth and breadth of the Host Fellowships organised under the previous two framework programmes. Striving for scientific excellence, developing innovative approaches to training, fostering synergies with national schemes and structuring the research environment, advancing equal opportunities and family-friendly schemes, these projects exemplify the Host Fellowship's outstanding achievements in consolidating European research careers. Every attempt has been made to strike a balance between different project types, themes and participating countries, but the selection implies no ranking among the many successful projects conducted since the Host Fellowships were first introduced in 1998.

The reach of the Marie Curie Actions has been increased considerably under the Seventh Framework Programme (FP7). The new framework programme is divided into four categories, one of which — the 'People' programme — aims to boost the skills and the numbers of people working in the European R&D sector. This specific programme will be delivered in the form of Marie Curie Actions. The funding for these actions has been increased considerably for FP7, and now reaches a total of € 4.75 billion.

Among other activities, the Marie Curie Actions as redefined for FP7 will provide for Initial Training Networks, Intra-European and International Fellowships and co-funding of programmes as well as Industry-Academia Partnerships and Pathways. As under previous framework programmes, Marie Curie under FP7 will also offer reintegration grants to support returning fellows.

The 'Molecular interactions during infection' training programme (MIDITRAIN)

Type of project:

Marie Curie Host Fellowship for Early Stage Training / mono-partner project

Host & coordinator:

Helmholtz-Zentrum für Infektionsforschung GmbH
Inhoffenstrasse 7
D-38124 Braunschweig
Phone: +49 (0)531 61815111
Fax: +49(0)531 61815002

EC financial contribution: € 2 007 193

Number of fellows: 12

Project duration: July 2004 – June 2008

Contact:

Dr Sabine Kirchhoff
E-mail: miditrain@helmholtz-hzi.de

SPREADING KNOWLEDGE TO COMBAT INFECTIOUS PATHOGENS



JULIA PULVERER AND UPNEET SANDHU

Twelve highly talented early-stage PhD researchers from across the globe now call Braunschweig, Germany, their home. The Helmholtz Centre for Infection Research (HZI) has created an electrifying environment where researchers are stimulated to exchange knowledge and hone their skills in research, all in the name of science. The fruits of their labour were produced under MIDITRAIN, a Marie Curie project funded under FP6.

“MIDITRAIN gave us the platform to develop our research skills and contribute to the scientific community.”

Medical School and the Veterinary School of Hannover. The organisers are especially proud because the programme has created a hub of knowledge which allows the trainees to research, train and interact with peers and leading scientists from around the world at a single site.

The project is involved in developing a therapeutic treatment or a vaccine against pathogens via solid knowledge exchange and interdisciplinary approaches. It also affords the trainees the opportunity to expand their knowledge in related areas, such as licensing and clinical trials, while at the same time broadening their scope into the fields of ethics and politics. These actions are crucial if the institute is to achieve its goal of becoming a European Centre of Excellence in the field of infection research.

After seeing an advertisement inviting students to apply for their PhD studies, Indian-born fellow Upneet Sandhu jumped at the chance to join. For her, MIDITRAIN was the avenue of choice to broaden her experience in molecular biology and cell biology,

MIDITRAIN effectively integrates the trainees in the Infection Biology programme, organised within the Centre for Infection Biology, a joint programme of HZI, the Hannover



Photos of Ms Pulverer and Ms Sandhu: © MIDITRAIN
Other photos: © Shutterstock

and to add to her professional training.

"I got hands-on experience and learnt different techniques," Upneet enthused. The project and research, she noted, are intellectually stimulating. "MIDITRAIN gave us the platform to develop our research skills and contribute to the scientific community," she said. Even more importantly, the researchers worked in an international environment, as the 12 selected researchers come from all over the world. "For me, meeting these fellow students, learning about their culture, their way of living, is an experience in itself," she remarked.

Upneet started her PhD work for the project 'Mouse immunisation model for strictly controlled antigen expression' in November 2004. This involves establishing a flexible and universal model system for strictly controlled antigen expression and as a proof of principle to produce a transgenic mouse model for strict liver-specific inducible expression of viral antigens in order to analyse

intrahepatic T cell immune responses. Through trial and exemplary effort, Upneet believes her project will bear fruit.

For fellow Julia Pulverer, from Austria, acceptance into the MIDITRAIN project gave her the chance to be part of an innovative programme that would further her career as a scientist. She values the access to an excellent scientific environment, where she has learnt to appreciate the extensive training possibilities offered to her and her peers. Solid networking, mini-symposia, student-weekend retreats, departmental seminars and presentations made by internationally recognised scientists support the work they carry out, she explained. Julia is "convinced this network will outlast the three years of our PhD work."

She was thrilled that she could focus the objective of her PhD project on elucidating reactions of interferons during processes of infection, immunisation, tumour development and defence. Innate immunity defends the body against invading pathogens, like viruses. Interferons

are made up of multiple proteins that are generated by cells after viral or bacterial infections. They stimulate other cells and effectively connect the two parts of a body's immune system.

Her three-year stay is giving her the opportunity to use the latest macro- and microscopical equipment, such as *in vivo* bioluminescence imaging systems and confocal or two-photon microscopes, which makes it possible to advance questions of the spatiotemporal dynamics of an interferon response in a living organism. Access to such advanced technology is key, noted Julia, in identifying the mechanisms of the interferon response.

DISTRIBUTION OF FP6 EST MONO-CONTRACTOR FUNDING: CITIES RECEIVING 1 % OR MORE OF THE ALLOCATED FUNDS

City	Budget (in € million)	Percentage of total EST budget (€ 327 million)
London	14.374	4.4
Paris	9.993	3.1
Geneva	9.302	2.8
Leeds	8.952	2.7
Munich	6.063	1.9
Nottingham	6.036	1.8
Norwich	4.800	1.5
Heidelberg	4.369	1.3
Maastricht	4.109	1.3
Lund	4.053	1.2
Bristol	3.729	1.1
Edinburgh	3.511	1.1
Eindhoven	3.502	1.1
Southampton	3.462	1.1
Manchester	3.425	1.0
Orsay	3.271	1.0
Dublin	3.227	1.0

Source: Contract monitoring analysis of Marie Curie Host Fellowships (EST and TOK) in the Sixth Framework Programme, DG Research working document, August 2006

Financial Portfolio Management system (FPM)

Type of project:
Marie Curie FP5 Industry Host Fellowship

Website: <http://www.computerdesign.co.uk>

Host & coordinator:
Computer Design, UK
109 Gloucester Road
SW7 4SS London
United Kingdom

EC financial contribution: € 175 000

Number of fellows: 2

Project duration:
January 2002 – October 2005

Contact:
Dr Haluk Toral
E-mail: haluk.toral@computerdesign.co.uk

INVESTMENT IN ICT RESEARCH PAYS HIGH DIVIDEND

Many of those involved in the world of finance dream of being at the heart of the action, soaking up the vibes of the really big deals and hearing the sound of the opening bell. For two researchers, this dream came true with their move to London's busy financial district to work on the Financial Portfolio Management system.

has to be top notch in all respects. To assist with the development of this first-class programme, Computer Design, the manufacturers of the FPM system, drew on the support offered by Marie Curie and enlisted the technical knowledge and expertise of two top scholars in computer science.

The scope of FPM, however, gave it a broader mandate than traditional and purely academic programmes and placed the scholars in the deep end of business: the project capitalises on interdisciplinarity and collaboration between academia and industry, both on the software producer side and on the investment professional side.

The Financial Portfolio Management system, or FPM for short, is a commercial software package currently being used by many of the top-end investment professionals in the financial hub of London and elsewhere across Europe.

With users including fund managers, investment trusts, hedge funds, family offices and private investment managers, the quality of the system

FPM is essentially a data processing and information management system for transaction and trading data, cash movements, corporate actions and valuations. The uniqueness and specialty of the product lies in the scope it offers programmers, who can tailor it to the specific requirements of each individual, and the availability of a myriad of options. This makes FPM very flexible, as it can cater



"I appreciated the possibility of handling my various projects from the specifications to delivery. I also found the interaction with the end users very enriching."

CÉDRIC BETTINGER



Photos: © European Commission

for the specific needs of different departments within different investment organisations — such as client account managers, dealers and accountants, among others.

The key to this flexibility lies in the training and expertise of its designers. Not only must they be knowledgeable in computer technology, but also in the traditions and practices of the investment management industry. For this reason, the fellows underwent continuous on-the-job training as the assignment rolled out through numerous meetings with the end users and in-house project managers.

According to the coordinator, Dr Haluk Toral, “the approach has benefited the fellows as they were exposed to business practices of the end users from the beginning and helped them to gain an understanding of the business requirements and habits of the investment profession.”

These sentiments were echoed by former fellow Cédric Bettinger: “I appreciated the possibility of

handling my various projects from the specifications to delivery. I also found the interaction with the end users very enriching.” His colleague, Iulian Oprea, notes that the Marie Curie Fellowship offered him a highly appealing “opportunity to travel from an Eastern European country and get access to this unique insight of the investment industry in the very heart of London”.

After their training, both fellows were placed in positions of responsibility which opened them up to new opportunities. “I received an initial training on the tools and technologies used at Computer Design,” said Cédric who, prior to arriving in London, had completed a Master’s degree in Computer Science called MIAGE (in Mulhouse, France) involving a mix of computer science, software engineering and economy/business courses. “And then having been trained on the job I have rapidly been involved in projects of various scales and had the opportunity to interact frequently with the end users while working on a particular assignment or to provide support,” he continued.

Though working at Computer Design on FPM systems offered many opportunities, it was not without its challenges. “As you know, London is a very expensive city when it comes to accommodation,” said Iulian. “Finding a decent place to live at an affordable price is really difficult.”

Three years on, however, Iulian proudly calls London home and, along with Cédric, has ‘crossed over’ from academia to industry. Both are now employed full-time as professionals with the same company exploring new challenges thanks to the all-encompassing professional training achieved there.



Single molecule dynamics of stress-signalling components studied with the ultra-sensitive fluorescence microscope CytoScout for drug screening (SIMODSS)

Type of project:

Marie Curie Host Fellowship for the Transfer of Knowledge – Industry-Academia Strategic Partnership Scheme

Host & coordinator:

Upper Austrian Research GmbH
Centre for Biomedical Nanotechnology
Upper Austrian Research GmbH
Scharitzerstraße. 6-8
A-4020 Linz
Phone: +43 (0)732 606079-16

EC financial contribution: € 240 233

Number of fellows: 6

Project duration: 2004 – 2008

Contact:

Dipl. Ing. Dr Alois Sonnleitner
E-mail: alois.sonnleitner@uar.at

DRUG SCREENING RESEARCH UNDER THE MICROSCOPE



ZSOLT BALOGH AND ALOIS SONNLEITNER

For the research team of Upper Austria Research GmbH, the chance to apply a new technology to a biological system was irresistible. Forging a partnership with peers in Hungary, the team launched the Marie Curie Fellowship Action SIMODSS with the objective to successfully establish a CytoScout lab and launch large-area scanning with single molecule sensitivity.

seen in the field of ultra-sensitive fluorescence microscopy, which has been applied to various areas of research like tumour classifications. However, no single molecule detection device for chip readout has been reported.

SIMODSS is showing the way for the future by presenting a novel scanning mode that is capable of reading micro-arrays with single-molecule sensitivity and diffraction limited resolution in scanning times comparable to times yielded by conventional scanning devices. According to the coordinator, “the aim of [the] project is to apply [...] patented readout technology to study heat shock activation and membrane physical state.”

Submitting a proposal to the Marie Curie Host Fellowship programme was uncomplicated, said Dr Alois Sonnleitner. The SIMODSS project gained solid support from the EU to embark on this venture. “With the experience I have now, it would not be a problem to administer or launch another project,” remarked Dr Sonnleitner, who added that Professor Vigh from the Hungarian

In the early nineties researchers were able, for the first time, to achieve the detection of single fluorescent molecules. This allowed for the investigation of spectroscopic properties of single dye molecules. Since then, many advances have taken place — most recently, the ability to detect single molecules in living cells. Progress has also been

“This fellowship offers a great opportunity for the transfer of technical knowledge.”



Photos: © European Commission

Academy of Sciences and Upper Austrian Research GmbH was inspired to launch a fellowship action so as to apply a new technology, as well as to stimulate researchers and promote partnerships on a global scale. The fellows were also attracted by the innovative nature of the project. "The novel aspect in this project is our focus on studying changes in the lipid membrane, which could offer a new perspective in this field," he said.

"A newly discussed function of heat shock proteins (HSPs) is their action as danger signals, for example in cancer," Dr Sonnleitner continued. "For this, HSPs need to leave the cell and cross the surrounding lipid membrane by an unknown mechanism. The goal of the project is to provide a deeper understanding of this process and screen for substances facilitating the release."

A key feature of SIMODSS was that the researchers were able to both explore the novel aspects of a biological system and to implement and improve a newly developed imaging technique, Dr Sonnleitner explained. Just as significant is the

fact that apart from the scientific and technical challenges and achievements, the personal contacts cemented within the project helped to further promote collaborative work and grant applications.

Zsolt Balogi, who proved to be a valuable member of the SIMODSS team, said the fellowship encouraged him to expand his technical knowledge and bring it home with him to the Biological Research Centre (BRC) of the Hungarian Academy of Sciences in Szeged. He focused on establishing a suitable biological system between the two institutes.

As for his experience, Zsolt said it was tremendous, as he, as well as his home institution, learnt a great deal. "I think this fellowship offers a great opportunity for the transfer of technical knowledge to Szeged and for adapting biological systems that require further improvement or development of technical facilities available in Linz. Personally, I have been learning a lot here in a really friendly and cooperative atmosphere. No doubt, this fellowship means a great advance in my career, because this way I have gained

lots of experience in the fields of a biological problem with practical importance, of imaging techniques as well as organisational skills."

The paperwork itself did not pose a problem either. "Entering the application was not much of a problem. Once started, rules and regulations had to be understood and some paperwork was required, which could be managed with the always very supportive administration at the European Commission," he stated.



"Entering the application was not much of a problem."

ALOIS SONNLEITNER

Combinatorics, geometry and computation (CGC)

Type of project:

Marie Curie FP5 multi-partner Training Site

Website: <http://www.inf.fu-berlin.de>

Host & coordinator:

Institut für Informatik
Freie Universität Berlin
Takustrasse 9
D-14194 Berlin

Partner institutions:

Free University, Berlin; Humboldt University, Berlin;
Technical University, Berlin; Konrad Zuse Centre for
Scientific Computing, Berlin; ETH, Zurich

EC financial contribution: € 158 400

Number of fellows: 13

Project duration: January 2002 – January 2006

Contact:

Prof. Dr Helmut Alt
E-mail: alt@inf.fu-berlin.de

MULTIPLYING SYNERGIES THROUGH KNOWLEDGE TRANSFER

Photos: © European Commission

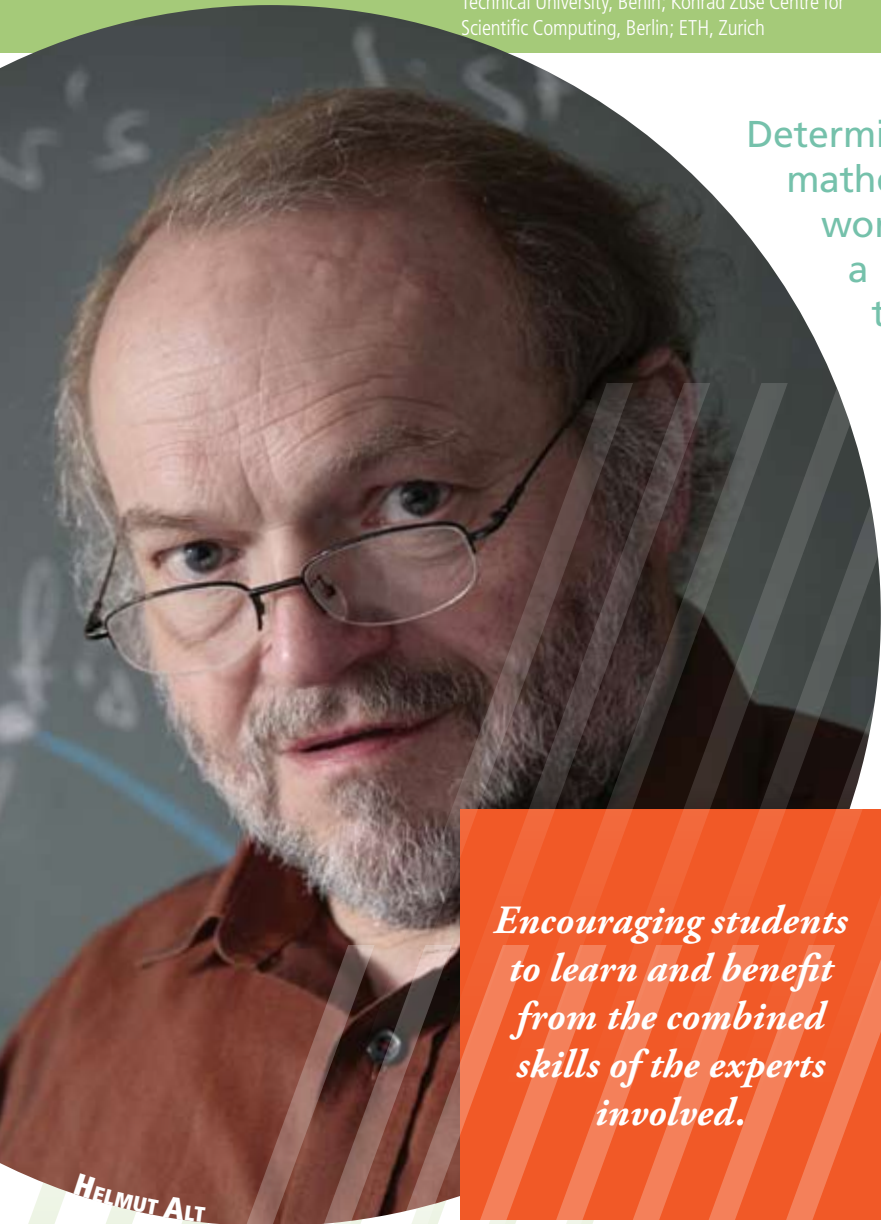
Determined to strengthen cooperation and interaction between discrete mathematics, algorithmics and their application areas, the German academic world kick-started 'Combinatorics, geometry and computation' (CGC), a Marie Curie project encouraging gifted young scientists to advance their research abroad through the transfer of knowledge and the complementary scientific expertise of international partners.

A strong alliance in Berlin, involving the higher learning institutes of the Konrad Zuse Centre for Scientific Computing, the Free and Humboldt Universities as well as the Technical University, determined that forging a joint initiative with the Departments of Computer Science and Mathematics at ETH Zurich in Switzerland would provide students from all over Europe with an environment to stimulate their minds and their research. The programme propelled other European institutes — notably in Belgium, the Netherlands and the United Kingdom — into action and secured their participation as well.

CGC was split into four basic research areas: combinatorics, geometry, optimisation, and algorithms and computation. Crucially, it encouraged students not only to focus on the immediate scientific area of their studies at the partner university, but also to learn and benefit from the combined skills of the experts involved. The programme was closely connected to the graduate programme of the same name which is nationally funded by the German Research Association.

The project was innovative in that each student was a guest at a partner university. Once their work at the site was complete, a second advisor at the partner institution was assigned. In return, the partners sent their students to Berlin for the same amount of time. This enabled the fellows to learn from experiences that are typically alien to students who choose to remain with only one research group during the course of their doctoral studies, to gain insight into the various research areas and to expand their knowledge about what is achievable in research. The programme's absolute success was attributable to the expertise of the partners and the fellows' eagerness to learn.

Panos Giannopoulos from Greece, who applied successfully for a postdoctoral position at Humboldt University, started a three-month fellowship focusing on theoretical and fundamental research in the autumn of 2002. He remarked that he thrived on the lectures, seminars and courses. Furthermore, owing to the expert advice and solid communication with the faculty and his peers, Panos did not face any obstacles. Most importantly, the programme gave him what he was looking for: a different working environment with financial benefits. The upshot is that he gained the experience he craved, both for his fellowship and for his future.

A circular portrait of Helmut Alt, a man with a beard and glasses, wearing a brown shirt. The portrait is partially obscured by a large orange diagonal-striped rectangle.

Encouraging students to learn and benefit from the combined skills of the experts involved.

HELMUT ALT

Type of project:

Marie Curie Host Fellowship for the Transfer of Knowledge – Industry-Academia Strategic Partnership Scheme

Website: <http://www.thefoundry.co.uk>

Host & coordinator:

The Foundry
1 Wardour Street
London W1D 6PA
United Kingdom

Partners: Trinity College Dublin

EC financial contribution: € 241 403

Number of fellows: 4

Project duration: January 2006 – January 2009

Contact:

Bill Collis
E-mail: bill@thefoundry.co.uk

AN OSCAR-WINNING PARTNERSHIP

Photo: © AXIOM

EU funding is helping to step up collaboration between London-based software developer The Foundry and Trinity College Dublin. This flourishing partnership had already earned the high praises of the Academy of Motion Picture Arts and Sciences for earlier work, which was awarded the highly coveted Scientific and Engineering Award®.

The aim of the AXIOM project is to intensify the relationship between the two institutions, which had already been cooperating for a number of years. According to coordinator Bill Collis, "The Marie Curie Fellowship was an excellent way of formalising this relationship and for allowing researchers to move freely between the two organisations whilst continuing to work on the advanced image processing algorithms that The Foundry is renowned for."

The Foundry specialises in visual effects technology for the film and video markets. From its humble beginnings in 1996, the company has pioneered a new generation of algorithms which enables the tracking of every pixel in a frame to subsequent and preceding frames. One of its most popular products is the Furnace programme, which enjoys an enviable reputation in its field, having been used on a host of high-profile feature films including *Casino Royale*, *X-Men 3 The Last Stand*, *The Da Vinci Code*, *Charlie and the Chocolate Factory*, *Batman Begins*, *King Kong*, *The Lord of The Rings Trilogy*, *Poseidon* and *Superman Returns*.

Anil Kokaram from Trinity College, a national of Trinidad and Tobago, had previously worked in collaboration with the Foundry and was part of the team which won the Academy Award. The award was won for the development and design of the Furnace software tool for enhancing the visual effects in motion picture sequences. Naturally, Anil was eager to continue his collaboration with The Foundry and Marie Curie gave him that chance.

The Axiom project "is an ongoing project and the idea was to help The Foundry create a range of tools for extracting features from video sequences," said Anil. "These features would then be used to assist in post-production of the images. I was at the Foundry to train them through a number of workshops in image and video processing. The main breakthrough so far has been a new process for removing brightness fluctuation in localised regions in the image."

Though still in its early stages, the project is already shaping the images of the future.

"The Marie Curie Fellowship was an excellent way of formalising this relationship."

Bill Collis

Waves and vortices in shear flows: instability, dynamics and control (WAVES)

Type of project:

Marie Curie FP5 mono-contractor Training Site

Website: <http://www.imft.fr>

Host & coordinator:

Institut National Polytechnique de Toulouse
(Toulouse Fluid Mechanics Institute/IMFT)
Allée du Pr. Camille Soula
F-31400 Toulouse

EC financial contribution: € 137 500

Number of fellows: 7

Project duration:

November 2000 – November 2004

Contact:

Prof. Alessandro Bottaro
E-mail: alessandro.bottaro@unige.it

A FUTURE IN FLUID DYNAMICS



“WAVES offered the researchers the right conditions to hone their skills, gain invaluable knowledge and experience, and promote their work.”

Research partnerships advance the world of science. A case in point is WAVES, a project which provided training through research on various aspects of fluid dynamics. By bringing together exceptional PhD students from different parts of Europe, WAVES created a powerful flow of information enabling the fellows to gain and exchange invaluable knowledge as they set out on promising research careers.

The ‘Waves and vortices in shear flows: instability, dynamics and control’ (WAVES) project, conducted at the Toulouse Fluid Mechanics Institute (IMFT), was innovative in that it targeted the study of waves and vortices materialising

in fluid systems, and assessed how researchers can successfully manipulate them. The fellows were keen to expand the knowledge on several fluid mechanical topics. In return, the IMFT training site supported them with valuable resources enabling all participants to realise their full potential.

The advancement of training on instabilities and transition to turbulence, as well as flow control in incompressible shear layers, proved essential in their research. They successfully computed optimal and robust control of complex fluid dynamics instabilities with an ascent-descent numerical algorithm which had never been used before. The project’s outstanding results include an extensive list of publications.

The WAVES project was not only helpful in realising peer-reviewed papers and refereed conference proceedings, but it was also successful in bolstering participation at conferences, and in workshops and seminars.

Through its connection to the Marie Curie Fellowship initiative,



Photo of Mr. Bottaro: © A. Bottaro
Other photos: © Shutterstock

WAVES offered the researchers the right conditions to hone their skills, gain invaluable knowledge and experience, and promote their work. The upshot was that these students, from diverse cultural backgrounds, worked together and encouraged one another to ensure bigger and better research partnerships across Europe.

Despite the huge number of people interested in taking part in WAVES, only seven fellows were selected. Hailing from Italy, the Netherlands, Romania, Sweden and the United Kingdom, these postgraduate researchers were given the green light to choose their research topics and supervisors within the training site, as well as the courses and activities they would attend.

Supervised by Professor Alessandro Bottaro, Swedish fellow Jens Fransson was at IMFT for six months. "It was a great experience to spend some time in France," Jens remarked. "It is very different from Sweden in many perspectives. For instance, I learnt quickly that at a restaurant you do not stress and that you can never wait too long for the food to be served."

As regards the Marie Curie Fellowship, Jens said that his inspiration to apply for a spot in the programme came from one of his colleagues who had applied for a Marie Curie postdoctoral programme a year before. Moreover, he got a glimpse of how life in Toulouse, and France in general, differs from that of his native Sweden.

"I got to know French culture in the best way, both at work and in people's homes," he explained. "Shaking hands, as the French do every morning with all their everyday working colleagues, is something that felt very formal in the beginning but it is actually very polite. In Sweden, this is not the custom."

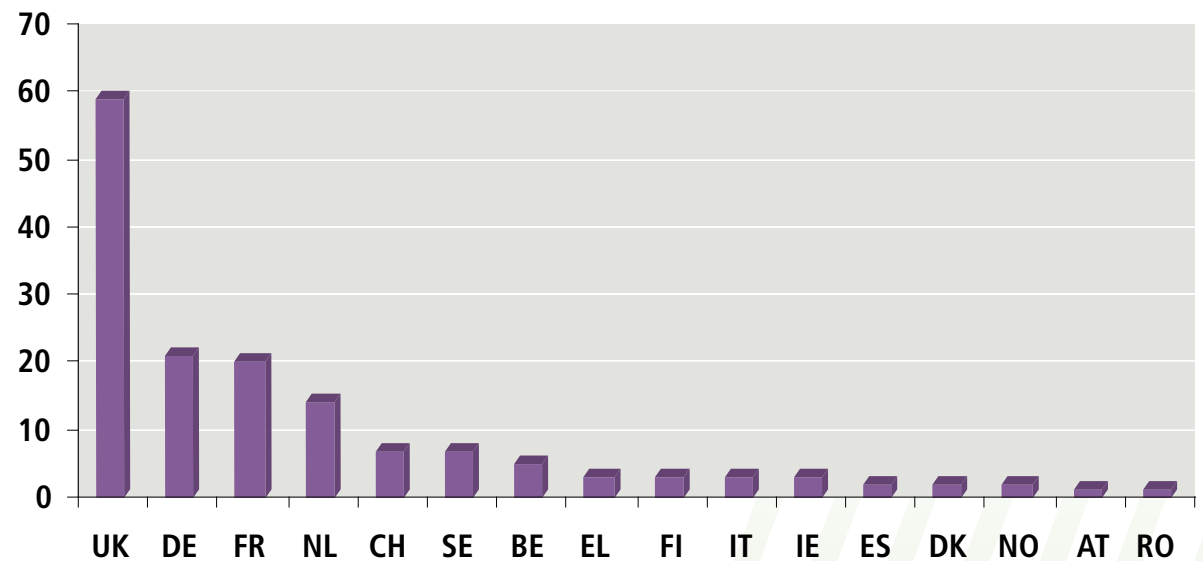
During the six-month fellowship, Jens took active part in two projects: experimental and numerical. The research works were published in the *Journal of Fluids and Structures* and in the *European Journal of Mechanics B/Fluids*, respectively.

His experience at IMFT played a huge role in broadening his views, both in the scientific world and in

general. "I had the opportunity to get to know Professor Bottaro, who is a very prominent researcher within the area of fluid mechanics." The funding allocated by the Marie Curie scheme unquestionably gave Jens the means to bolster his research on a European scale, as well as to further

his career and forge strong ties with other researchers. "Today, I am still in academia and I am employed as a research associate at the Department of Mechanics at the Royal Institute of Technology (KTH) in Stockholm," he said.

LOCATION OF FP6 EST MONO-CONTRACTOR PROJECTS PER COUNTRY



Source: Contract monitoring analysis of Marie Curie Host Fellowships (EST and TOK) in the Sixth Framework Programme, DG Research working document, August 2006

Genomic approaches to crop improvement (GenCrop)

Type of project:

Marie Curie Host Fellowship for the Transfer of Knowledge – Development scheme

Website: <http://www.uwm.edu.plkatgenbiol>

Host & coordinator:

University of Warmia and Mazury in Olsztyn
Department of Genetics
ul. Oczapowskiego 2
PL-10-719 Olsztyn

EC financial contribution: € 336 677

Number of fellows: 14

Project duration: June 2004 – June 2008

Contact:

Prof. Dr hab. Roman Zieliński
E-mail: rzielin@moskit.uwm.edu.pl

GLOBAL COOPERATION FEEDING THE ADVANCEMENT OF GENOMICS



The University of Warmia and Mazury in Olsztyn, Poland, is the ultimate setting for a meeting of the minds, where eager and willing scientists from 10 EU Member States are finding their niche in the world of genomics. GenCrop, a Transfer of Knowledge project funded under FP6, is providing researchers with the means to forge key partnerships and exchange knowledge, fostering progress in RTD.

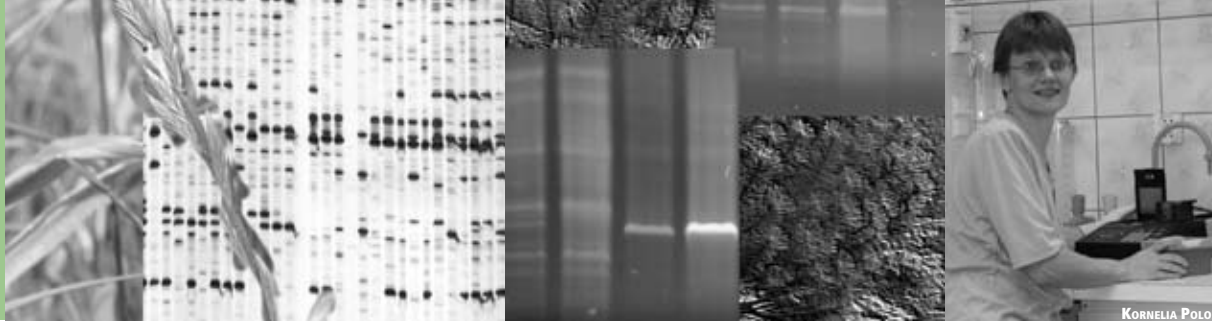
“Without international and interdisciplinary contacts, you cannot build your career.”

knowledge between these experts and researchers in training. This is especially true in the case of GenCrop — a result of extensive cooperation with partners from various European countries.

GenCrop seeks to bolster the research potential of the Department of Genetics in the budding field of plant genomics. Today, genomics is driving forward fundamental and applied plant biology. Higher productivity and quality of crops are fuelled by this science, as it effectively adds value to seeds, offers better quality of life and fortifies food security. The project recognises the fundamental imperative that genomics research should correspond to both producer and consumer needs, as less developed areas can be helped and jobs can be created, specifically for the experts, farmers and producers.

With its fast-paced developments and breakthrough results, genomics is an exciting field of scientific research. Fruitful research is guaranteed through the cooperation between various scientific disciplines and experts, and the transfer of

The project targets training and expertise for researchers who are diligently working at establishing genomic applications and for those wishing to shape and boost the science of plants. The development of genomics has paid off, in part



Photos: © GenCrop

because of the close interaction between the different biology disciplines and the Marie Curie programme. Researchers now have access to valuable tools that intensify and strengthen applied and fundamental research.

Through the implementation of innovative technologies, GenCrop has succeeded in answering many of the fundamental questions that have emerged in thematic areas which have boggled the minds of many in the past. To date, the team has published 12 scientific articles and followed up on this success with several oral and poster presentations.

GenCrop has confirmed that a number of bacterial and insertional sequences can be found in plants. The researchers proposed that primers complementary to bacterial sequences can be used as species-specific markers in taxonomy research. Their work has provided the tool to study evolution, speciation and hybridisation within various taxa, giving a boost to research that has been dormant for more than 20 years and establishing new trends in this area of R&D.

The Marie Curie programme is also affording GenCrop members the support they need to reinforce their contacts on an international level. The researchers will take with them the knowledge acquired during their stay and in turn pass it on to young researchers who have set their sights on establishing careers in genomics.

Dr Kornelia Polok, an experienced researcher in plant molecular genetics from Poland, was drawn to the field of genomics because she sought to work in the area of the structural genomics of plants and molecular evolution. "The application of the most advanced technologies to answer why there are so many different plant species and how they are evolved is a fantastic adventure," Kornelia remarked.

While she had been working on different molecular technologies with a small team, she explained how important it was for her to interact and exchange ideas with her peers from abroad. "Without international and interdisciplinary contacts, you cannot build your career. Before the Marie Curie project, nobody knew me

from a scientific point of view, now I am invited to take part in proposals and I cooperate with many researchers all over Europe," she said excitedly.

Her extensive line of work includes intense collaborations with Dr Andrew Flavell from Life Sciences Research Biocentre in Dundee (Scotland, UK). Kornelia also expressed her enthusiasm about working with partners at Wageningen University in the Netherlands and Hannover University in Germany in 2008. Her work with Dr Flavell was challenging and gave her the impetus she needed to advance her studies on the molecular evolution of plants.

These partnerships have been instrumental in helping Kornelia use different techniques to work in an international environment. Even more importantly, sharing her research with her peers has afforded her the opportunity to use new methods to study plant genomes.

Kornelia feels that GenCrop and the Marie Curie scheme gave her the opportunity to grow enormously, both personally and professionally.

DISTRIBUTION OF FP6 TRANSFER OF KNOWLEDGE MONO-CONTRACTOR FUNDING: CITIES RECEIVING 1 % OR MORE OF THE ALLOCATED FUNDS

City	Budget (in € million)	Percentage of total TOK budget (€ 175 million)
Dublin	11.914	6.8
Galway	8.291	4.7
Heraklion	7.728	4.4
Warsaw	6.694	3.8
Cracow	6.114	3.5
Cork	5.493	3.1
Lodz	4.315	2.5
London	3.416	2.0
Sheffield	3.308	1.9
Jena	3.176	1.8
Athens	3.141	1.8
Eindhoven	2.646	1.5
Budapest	2.522	1.4
Liverpool	2.448	1.4
Limerick	2.093	1.2
Bremen	2.000	1.1

Source: Contract monitoring analysis of Marie Curie Host Fellowships (EST and TOK) in the Sixth Framework Programme, DG Research working document, August 2006

Organised polymer nanostructures for application in biology and technology

Type of project:

Marie Curie FP5 mono-contractor Training Site

Website: <http://www.imc.cas.cz/en/imc>

Host & coordinator:

Institute of Macromolecular Chemistry
Academy of Sciences in Prague
Heyrovského nám. 2
CZ-162 06 Praha 6 – Břevnov

EC financial contribution: € 100 000

Number of fellows: 10

Project duration:

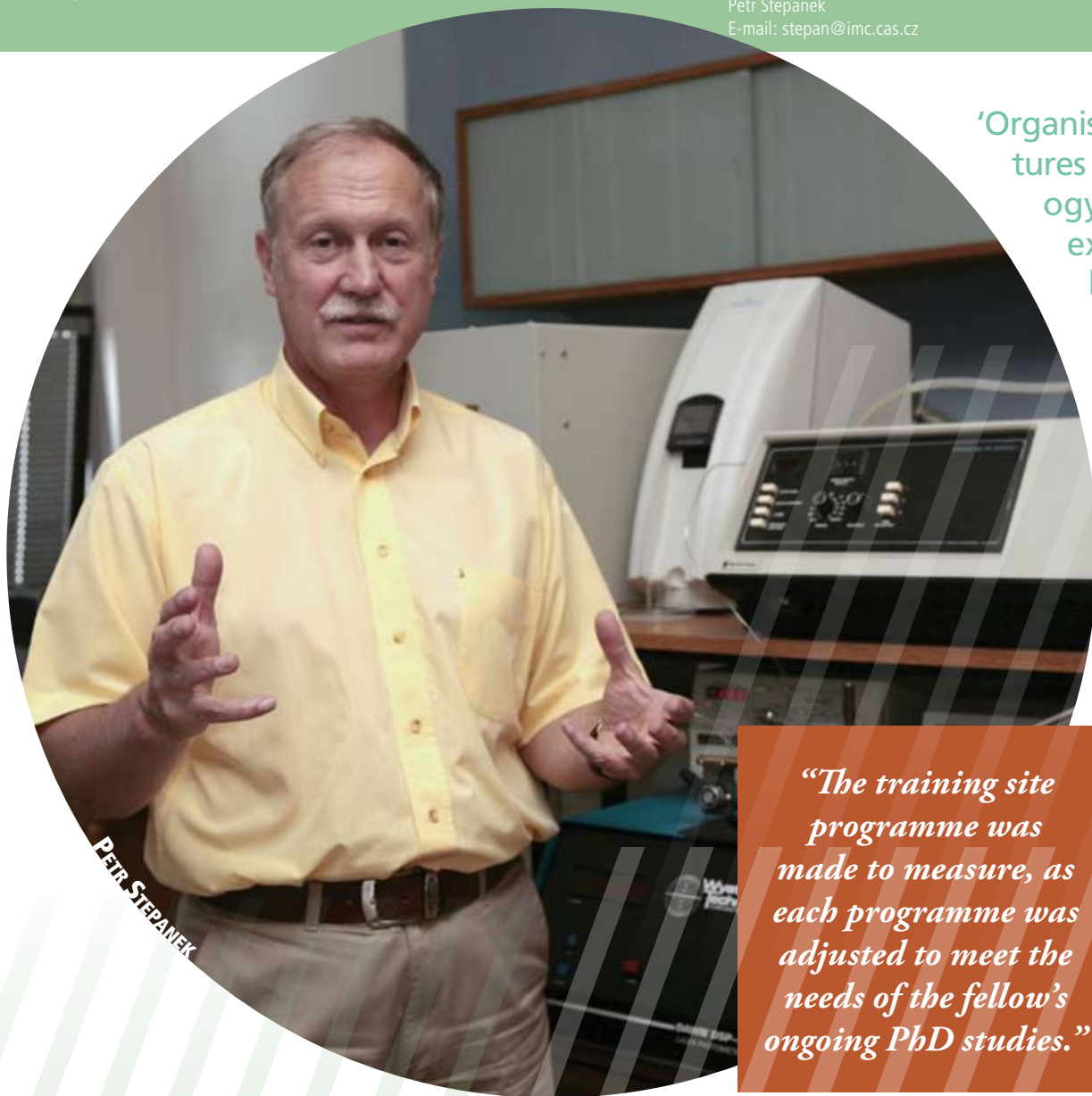
December 2002 – December 2005

Contact:

Petr Stepanek

E-mail: stepan@imc.cas.cz

PRAGUE, A NEW HOME FOR POLYMER SCIENCE TRAINING



‘Organised polymer nanostructures for application in biology and technology’ is an exemplary project which highlights the scientific strengths of the Czech Republic. It has inspired European researchers to leave their familiar surroundings and work abroad. These researchers worked on an exceptional project which stands out for its ability to reinforce partnerships between the host and numerous other European institutions active in the field of polymer science.

“The training site programme was made to measure, as each programme was adjusted to meet the needs of the fellow’s ongoing PhD studies.”

Chemistry of the Academy of Sciences aimed at enriching the theoretical background and practical experience of 10 young fellows. One could say the training site programme was made to measure, as each programme was adjusted to meet the needs of the fellow’s ongoing PhD studies during the duration of his or her stay in the historic and picturesque city of Prague.

For the Danish, Spanish, French, Polish, Swedish and British fellows, taking part in the diverse training activities devoted to polymer nanostructures gave them a unique insight and the much-needed experience they were after, thus further cementing success in their work and career paths. Among the stimulating activities was the preparation of polymers for biological applications of drug delivery and gene therapy, as well as the synthesis and characterisation of ion-containing polymers to be used in the preparation of model conducting polymer membranes for fuel cells.

This innovative doctoral training programme at the Prague-based Institute of Macromolecular

The fellows focused their work specifically on investigating polymers



Photos: © European Commission

through nuclear magnetic resonance techniques as well as infrared and Raman spectroscopy; rheology; gel synthesis and dynamic properties; and dynamic light scattering of polymer solutions, among others. Working diligently with the site's experts, as well as their peers, proved effective in securing the skills the fellows needed for their advancement in the field.

Also significant were the long-lasting contacts made between the institute and the home universities of the students involved in the programme. Not only did these students excel and thrive in an all-encompassing research environment, but their hard work culminated in the transfer and development of knowledge, as well as international research experience and publication of their theses. The institute also provided a one-stop site where students could meet with experts to discuss various experimental techniques. Ultimately, the training site offered students an opportunity for a comprehensive study of supramolecular ordering. They also investigated its impact on properties and functionality of the polymers and how to make use of

the behaviour of supramolecular structures for general and specific purposes.

Cooperation between hosted doctoral fellows and other Czech or foreign students influenced the concept of European science that is backed by the EU, the experts said.

Simon Briggs, a researcher from Britain, can attest to that. After encountering obstacles in his quest to obtain his PhD at a university in the United Kingdom, Simon was introduced to Professor Karel Ulbrich, the Director of the institute in Prague, who informed him about the Marie Curie Fellowship scheme.

Simon soon realised that the project was his cup of tea and started developing novel polymer materials for gene delivery. Talking to Professor Ulbrich about the direction his project should take was easy. "During the autumn of 2003, I spent three months working in Prague being taught the fundamentals of polymer chemistry by a very experienced and knowledgeable team," Simon said. "They were able to demonstrate the principles and

teach me the techniques for both the synthesis and analysis of the polymers."

Following the completion of his PhD studies, he was able to continue his work in the synthesis of novel polymers at Oxford in a postdoctoral position. Currently, the group in which he works still maintains strong collaborative links with the team in Prague.

Despite the language barrier, Simon not only gained invaluable experience in the world of science, but also at a cultural level. The opportunity to study in Prague gave him the chance to live and work in a city that he still calls 'home' every time he returns.



Smart lightweight structures in aerospace and transportation applications (SLS)

Type of project:

Marie Curie FP5 mono-contractor Training Site

Website: http://www.dlr.de/fa/en/desktopdefault.aspx/tabid-1321/1829_read-3274/

Host & coordinator:

Deutsches Zentrum für Luft- und Raumfahrt e.V.
in der Helmholtz-Gemeinschaft
Institute of Composite Structures and Adaptive Systems
Head of Department of Adaptronics
Lilienthalplatz 7
D-38108 Braunschweig

EC financial contribution: € 180 000

Number of fellows: 6

Project duration:

21 May 2002 – 14 December 2005

Contact:

Dr Hans Monner
E-mail: Hans.Monner@dlr.de
Phone: +49 (0)531 295 2314 Fax: +49 (0)531 295 2876

TRANSPORT PICKS UP THE PACE... SMARTLY

The Marie Curie project 'Smart lightweight structures in aerospace and transportation applications' (SLS) revolutionised the world of transport. Six fellows from the Czech Republic, Italy, Romania and Spain helped to bring this revolution about.

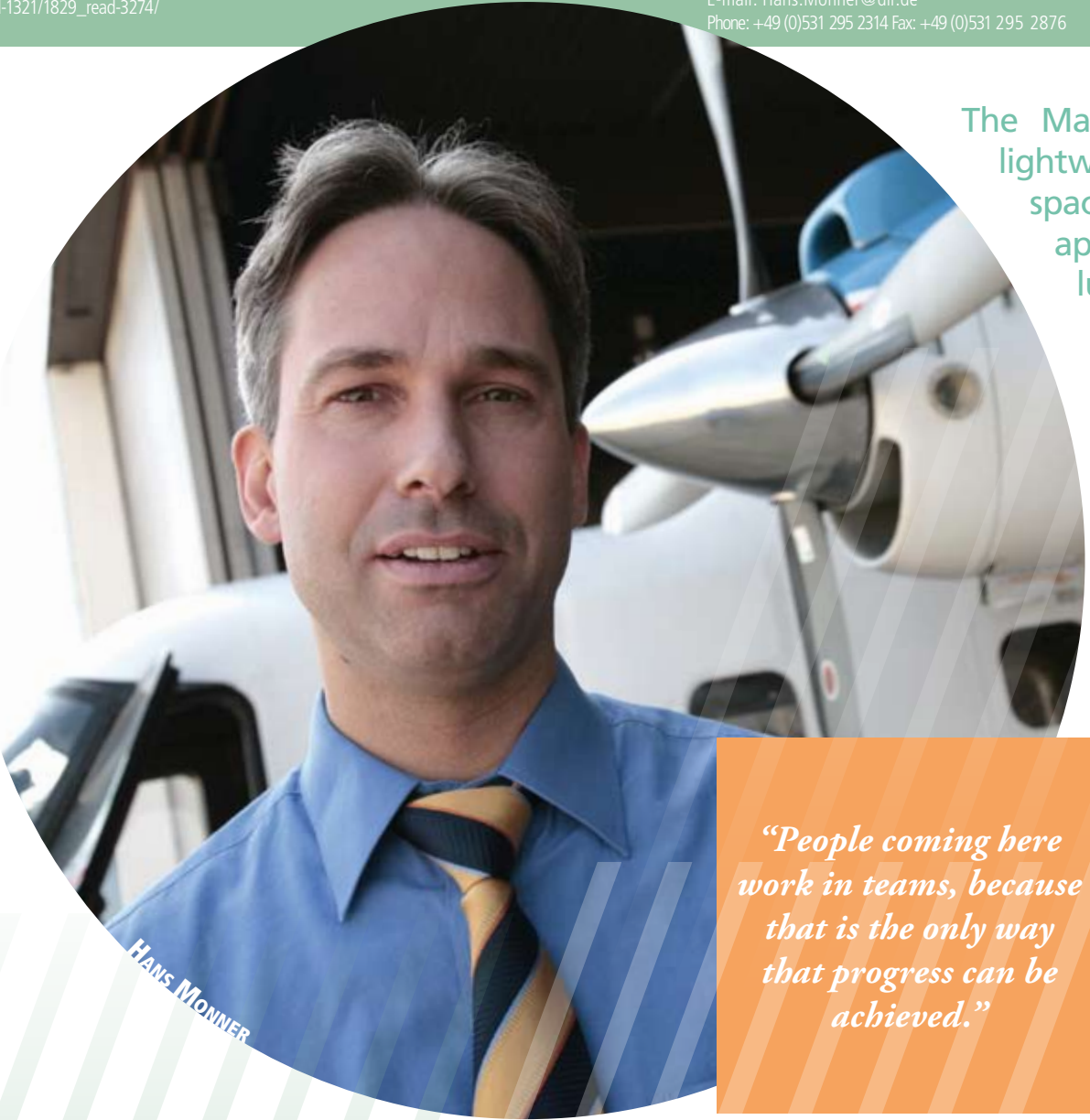
Smart materials such as shape memory alloys have a broad adaptability to different operating conditions and possess a behaviour which is inherently dynamic. What distinguishes these structures as dynamic is their ability to become 'self-adaptive' in the face of changing environmental conditions. These innovative materials hold the key to the conception of entirely new classes of structural systems, and as such could radically alter the transport industry.

Multifunctional materials, sensors and actuators are an integral part

of the design process. By combining them with the appropriate controllers, it is possible to realise active shape and positioning control.

Structures based on smart materials will be considerably lighter than the current state of the art, thereby saving energy resources and lowering the acoustic and environmental impact. With such attractive characteristics, they will represent one of the key technologies of the 21st century as the world turns to energy conservation. To realise the full potential of these innovative materials, a large number of experts will be needed in the forthcoming years in many industrial sectors, especially in aerospace and transportation. The results are complementary to projects funded within the national aeronautics programme, such as the smart winglet project and others funded by the German Research Council as part of the adaptive parallel robot project.

Dr Hans Monner is a leading expert with the German Institute of Composite Structures and Adaptive Systems, an institution which combines industry with academia

A circular portrait of Dr. Hans Monner, a man with dark hair, wearing a blue shirt and a yellow and blue striped tie. He is standing in front of an aircraft. The name 'HANS MONNER' is written in white capital letters along the bottom left edge of the circle.

"People coming here work in teams, because that is the only way that progress can be achieved."



Photos: © European Commission

aspects. He is convinced that Europe can achieve leadership in this field. In order to bring this about, he turned to the Marie Curie Actions for assistance and found them very supportive and flexible. "We can decide what we do and what we offer," he said, adding, "I like the training site very much. It is very important that we help the exchange of knowledge between different countries. This is easier when you can build up the personal relationships with like-minded personalities which help the exchange process. What was also important was that people could move and get financial support from the Marie Curie Training Site and this is support for exchange."

SLS was highly successful in its purpose of preparing young scientists for the promising field of smart structural systems. Nine projects were carried out throughout the funding period, which ran from May 2002 to December 2005. The subject of the projects ranged from the analysis of components like solid-state hinges or single-stroke actuators to investigations of complex systems such as helicopter rotor blades or piezoelectric motors.

Each of the fellows supplied valuable output such as design rules, simulation modules, demonstration hardware as well as key facts concerning the behaviour of materials, components and systems. Robert Zemcik from the Czech Republic was involved in creating and implementing new elements into existing commercial software for the analysis of laminated composite structures with piezoelectric (smart) materials.

After finding out about SLS from the internet, Robert was eager to get involved and has found the experience very rewarding. "For me personally, I found the professional work and its results [...] to be the most satisfying. I also enjoyed the prospect of meeting and working with people from many countries as well as being independent, which meant a lot of responsibility."

The training programme also constituted a fruitful experience for the resident team, providing the opportunity of an exchange of ideas and experience as well as contacts to international prospective partners.

Dr Monner is quick to emphasise that the international aspect was a key condition of the training site, noting that "the next step would be that PhD students leave to join other companies and by staying in touch we extend our international network. So we could enlarge the network of the group."

The training course was based on a collaborative model. The reasoning behind this was that the field is interdisciplinary by its very nature and it would be impossible for one person to be an expert in every aspect. Dr Monner concluded: "It is very important that experts of all these different fields work together and talk with each other. That is why people coming here work in teams, because that is the only way that progress can be achieved."



Dualistic histology

Type of project:

Marie Curie Host Fellowship for the Transfer of Knowledge – Industry-Academia Strategic Partnership Scheme

Website: [http:// www.dako.com](http://www.dako.com)

Host & coordinator:

Dako Denmark A/S
Produktionsvej 42
DK-2600 Glostrup
Denmark
Phone: +45 44 85 95 00
Fax: +45 44 85 95 95

Partner institutions: Glasgow University

EC financial contribution: € 380 285

Number of fellows: 2

Project duration: 2004 – 2006

Contact: Dr Kirsten Vang Nielsen
E-mail: kirsten.vang@dako.com

INDUSTRY AND ACADEMIA JOIN FORCES TO ADVANCE CANCER TREATMENT



TOVE KIRKEGAARD AND CAROLINE WITTON

In 2002, the European Parliament acknowledged that every 6.5 minutes a woman in the EU dies as a result of breast cancer. And even more tragically, the incidence rate in Europe is increasing each year. The 'Dualistic histology' project is on the front line of research, coming up with new ways of diagnosing breast cancer and boosting the efficacy of treatment programmes.

"Both project partners benefited so much that the bonds created continue even after the project ended."

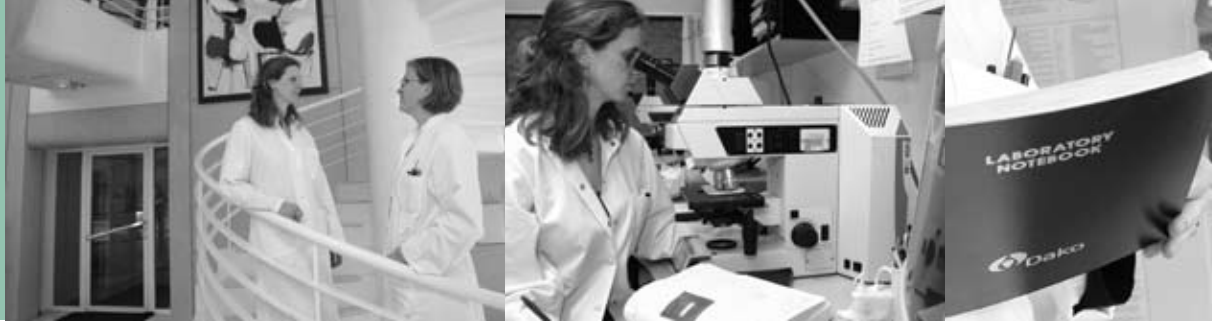
benefited so much that the bonds created continue even after the project ended.

Dako is located in the middle of Medicon Valley, Europe's strongest life sciences cluster, and a world leader in cancer diagnostics in pathology. It was the first company to make bio-markers which were directly linked to treatment. However, it is lonely at the top and when Dako looked outside the company for an associate to assist with their ventures into new technologies, none could be found in industry.

Dr Kirsten Vang Nielsen is the senior principal scientist heading up the Molecular Pathology Unit at Dako. "We had been looking for a partner for some time and we had begun talking about an idea to begin collaborating with John Bartlett from Glasgow University who was a customer of ours." But the idea did not become a reality until they were made aware of the Marie Curie programme.

"Our partnership only really came about after a fellow researcher told us about the opportunities offered by Marie Curie. It not only offered the

The 'Dualistic histology' project is an ideal example of a perfect partnership which integrated the needs of each party like jigsaw pieces. In this transfer of knowledge project between the academic institution of Glasgow University and industrial company Dako in Denmark, both partners



Photos: © European Commission

funding needed to get this project off the ground but it also provided the necessary know-how and framework on how to arrange a joint collaboration effort."

As part of the arrangement set out by the Marie Curie programme, each institution would exchange one person who would then work with the other research team for two years. "It was quite fortuitous that at the same time we heard about Marie Curie, we both had candidates who wanted to expand their experiences and knowledge," Dr Nielsen goes on to say. And so began this lasting collaboration.

The researchers selected were Tove Kirkegaard, who was an employee of Dako, and Caroline Witton from Glasgow University. Both women had completed postdoctorates but were eager to experience life on the other side of the fence.

In the initial stages, both groups came up with ideas for bio-markers which they wanted to examine. These were then developed by Caroline at the Dako production facility. "The fact of the matter is that developing bio-markers is Dako's speciality," Caroline

said. "It would simply have taken too many resources had they been developed at the labs in Glasgow."

These bio-markers, or FISH probes as they are called in the industry, were then tested on tissue samples by Tove at the University of Glasgow. "The department I was working with at the University was based at a hospital which gave us access to tissue samples with breast cancer," said Tove.

"Some of the bio-markers tested were very new and had it not been for Marie Curie we would never have had them, nor the knowledge we gained from testing them," explained Dr Nielsen. "The collaboration allowed us to test around 30 markers to see if they were involved in breast cancer. I think that in order to create new markers we had to align ourselves with a scientific group, otherwise we would have to rely on scientific publication but that would mean that we would be lagging behind."

In fact the 'Dualistic histology' project is a good illustration of a working transnational research and development project, with the research being done in Glasgow and the development in

Copenhagen. As a result of their efforts certain bio-markers were ruled out for further development for breast cancer, saving both time and effort, while confirmation was also made for others which had already been developed by Dako.

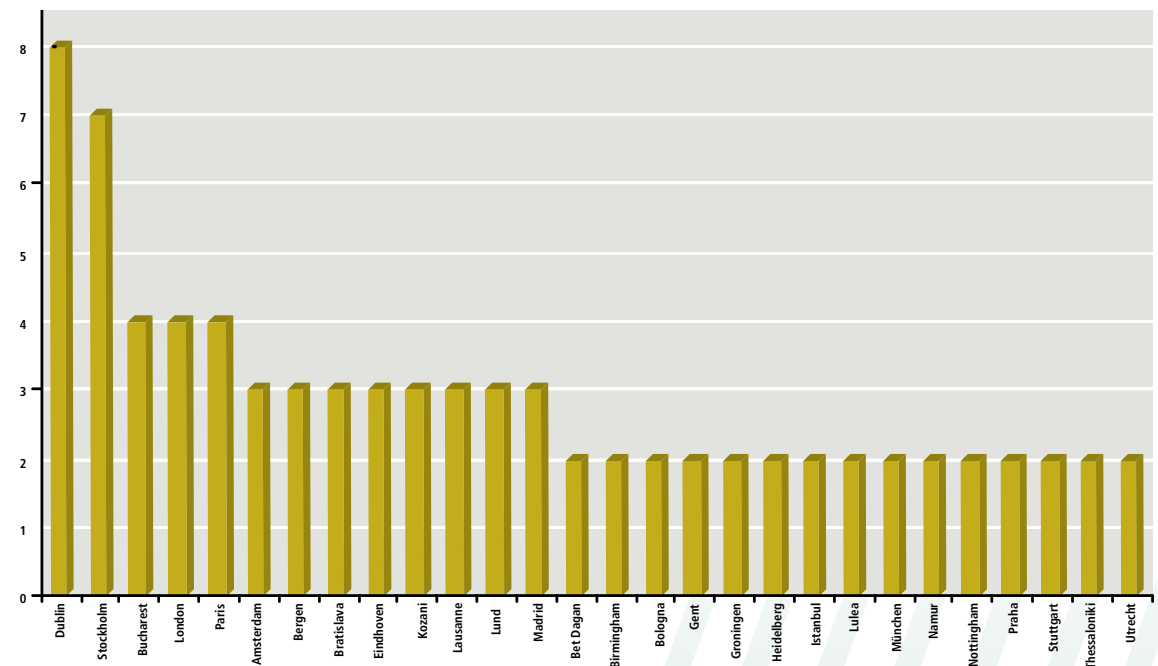
"It was a great experience," commented Tove. "I really enjoyed

being back in an academic environment. And the move to Glasgow wasn't that difficult either since Caroline and I decided to exchange apartments with each other."

Looking back on the experience, Dr Nielsen believes that the working group gelled really well. "The combination was perfect, both at a

research level and at a personal level. We had two senior researchers with many years of experience each, and two young scientists full of questions and new angles at seeing things: simply perfect."

MAIN LOCATION OF TOK-IAP PARTNER INSTITUTIONS UNDER FP6



Source: Contract monitoring analysis of Marie Curie Host Fellowships (EST and TOK) in the Sixth Framework Programme, DG Research working document, August 2006

PROMISING FUTURES BUILDING ON THE PAST



EMESE BALINT AND ROLF PETRI

‘Building on the past’ is one of Marie Curie’s most inclusive projects as it now expands its reach to encompass 10 universities from several countries. It allows early stage researchers investigating Europe’s history the opportunity to interact with colleagues on a much broader scale. The project successfully offers innovative research experience in historical and related fields with a broader perspective than any national educational framework could do.

“These experiences have laid the groundwork for lifelong networks of colleagues and friends who collaborate in several projects, and which are spread all over Europe.”

dimensions of European history among young European doctoral fellows. The challenge was to combine this at the professional level and give these aspiring European doctoral fellows preferential access to the European scientific community.

According to the project coordinator, Professor Rolf Petri from the Ca’ Foscari University of Venice, “these two aspects are indeed strictly interlinked, especially in the field of historiography, where the European scientific community remains to a remarkable extent still a project for the future. One can hardly find another academic discipline which is so profoundly characterised by national items, traditions, discourses, and academic circles. Thus, our effort points at the education of young scholars who shall form and transform the future European scientific community of historians.”

The project is definitely striking a chord among European researchers and institutions. After 4 years, the network jumped from 6 to 10 universities across Europe as they learnt about its success, and its

Many years ago the founders of the project had a grand vision. They wanted to heighten the awareness of the multiple and inter-crossing



Partner institutions: Ca' Foscari University of Venice, Ecole Normale Supérieure (Paris), Institute of Social Sciences of the University of Lisbon, National and Kapodistrian University of Athens, Pablo de Olavide University of Seville, Slovak Academy of Sciences (Bratislava), Södertörn University College (Stockholm), University College London, University of Bielefeld, University of Groningen.

Photos: © European Commission

uptake amongst students also leaped to 128 students from 24 countries. Each of these fellows completed tailored programmes for periods of 3 to 12 months. Based on their results to date, Professor Petri is hopeful that this project will continue to gather momentum. "At the end of the FP6 funding period in 2009, we estimate that the number of fellows will be almost 200," he says.

The success of the project came after lots of hard work and intense cooperation between institutions, fellows and Brussels. "Thanks to the good collaboration with the Brussels offices and our partners, and the outstanding ability of the European Doctorate's managing staff in Venice, so far we have managed quite well with the manifold day-to-day difficulties which are inherent in a project of this scale."

The diverse origins of the students attracted are exemplified by Emese Balint from Romania who is focusing her research on the early modern social history of public punishments in Transylvania. Having completed her primary archive research on location, she was drawn to Venice

for the many benefits it could offer her and her career. "I chose to apply for Venice because of my tutor who is a leading figure in the field of microhistory, which is very close to my field of research. His advice and help on the writing part of my dissertation is the greatest benefit I could get."

"This period in Venice is helpful not only for my dissertation writing but for my future career, because I have also written two articles for international history journals," she adds. Upon arrival, she was particularly impressed with the degree of support provided by the staff. "The staff of the History Department were most kind and helpful with the induction to the Venetian way of life and administration."

For Anne-Claire Ignace, a fellow from Paris, the opportunity to spend time in Venice was the main attraction. "Being here gives me access to archives I absolutely needed to see for my PhD. The money I receive, thanks to the Marie Curie Fellowship, allows me to stay in a city where I couldn't have stayed for such a long

time in other circumstances. The contacts and relationships I've made here will be of great importance in the future. I've already met many professors and young researchers whom I would never have met if I had not been accepted for this fellowship. I'm sure I will continue to have contacts with them in the future, and that maybe we will have some common research projects."

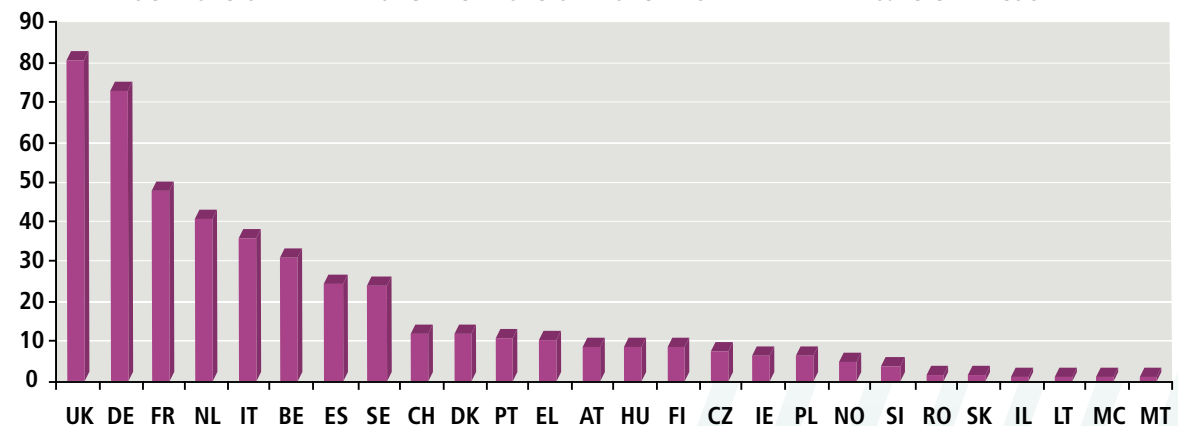
Professor Petri is very optimistic about the future of the project: "Its success is based on personal

experiences made before and after the creation of the network. These experiences have laid the groundwork for lifelong networks of colleagues and friends who collaborate in several projects, and which are spread all over Europe. We hope to expand these networks to the benefit of a really European scientific community of historians."

"The present generation of doctoral students appears to appreciate more than ever before the value [...] that arises from high-level international

and interdisciplinary debate. They learn from each other, interact, and establish durable connections, just as we did some decades earlier. The main difference is that there were only a few of us, whereas they are beginning to be many."

MAIN LOCATIONS OF PARTNER ORGANISATIONS OF FP6 EST MULTI-PARTNER PROJECTS PER COUNTRY



Source: Contract monitoring analysis of Marie Curie Host Fellowships (EST and TOK) in the Sixth Framework Programme, DG Research working document, August 2006

Investigation on hypoallergenic goat milk in Sicilian breeds (GoMilkSicily)

Type of project: Marie Curie Host Fellowship for the Transfer of Knowledge – Development Scheme

Website: http://www.senfimizo.unipa.it/genetica/gomilksicily_eng.html

Host & coordinator:
Department S.En.Fi.Mi.Zo.-
Animal Production section
University of Palermo
Viale delle Scienze – Parco d'Orleans
I-90128 Palermo

EC financial contribution: € 790 932

Number of fellows: 8

Project duration: April 2005 – March 2009

Contact:
Raffaella Finocchiaro and Baldassare Portolano
E-mail: rfino@unipa.it, bal dop@unipa.it

MILK, STRENGTHENING RESEARCH IN SICILY



A city with a 3 000-year rich history, renowned for its architecture and mouth-watering foods, the Sicilian capital Palermo has welcomed eight research fellows to take part in a stimulating project at the University of Palermo. These researchers are cooperating, and exchanging their unique expertise, to capitalise on the farm animal resources unavailable in other parts of Italy. The FP6-funded GoMilkSicily project is making this happen.

“GoMilkSicily will be instrumental in establishing a sophisticated training centre in the field of animal genetics, genomics and bioinformatics.”

of applying for Marie Curie support to boost regional development prompted researchers from the Animal Production Unit of the S.En.Fi.Mi.Zo. Department (Science of entomology, phytopathology, agrarian microbiology and zootechnology) at the University of Palermo into action, motivating them to kick off GoMilkSicily, a project targeting the development of new areas of competence.

The research team draws on the international know-how of the participating scientists, coming as they do from all across Europe and from countries as far away as Argentina and Brazil. This pool of expertise gives all team members the opportunity to add to their research experience, in a multicultural environment.

The team has set its sights on assessing the potential suitability of goat milk as an alternative source for milk products. This is a source of hope for the many people who suffer from allergies triggered by cow milk proteins and are unable to consume products manufactured from cow's milk. Suitable goat

At the tip of the boot lies Sicily, a region which has yet to realise its full research potential. The possibility



BALDASSARE PORTOLANO

Photos: © European Commission

milk can be achieved by improving the conservation and valorisation of farm animal genetic resources. Another promising line of research focuses on the implementation of molecular genetic technology in animal breeding schemes, in combination with statistical genetics methodologies. Ultimately, GoMilkSicily will be instrumental in establishing a sophisticated training centre in the field of animal genetics, genomics and bioinformatics in an area in dire need of research support.

Sicily, like other less-favoured regions in southern Italy, is an agricultural area which stands to benefit greatly from improved research facilities. The country's southern region is a prime location for goat milk production, but so far it has not had access to the strong research infrastructure needed for adding value to goat milk.

GoMilkSicily is determined to step into this knowledge gap and prove how knowledge transfer can stimulate and strengthen the scientific capabilities for goat milk research in Sicily. The project offers the latest information, knowledge

and expertise in advanced techniques of genomics, bioinformatics and statistical genetics. The beneficiaries of the thought-provoking and effective research are the staff members and students of the S.En. Fi.Mi.Zo. Department.

For Dr Ben Hayes, an animal breeding and genetics expert, his journey from Australia to Palermo was only the start of a superb three-month fellowship. Interacting with and shaping the minds of students from abroad such as Hungary, the Netherlands and Norway substantiated the role GoMilkSicily has in the world of research. Ben's teachings focused on statistical genomics. "The warmth of the students, their performance in the practicals, and the chance of ongoing contact all demonstrated to me that the course had been successful," Ben remarked.

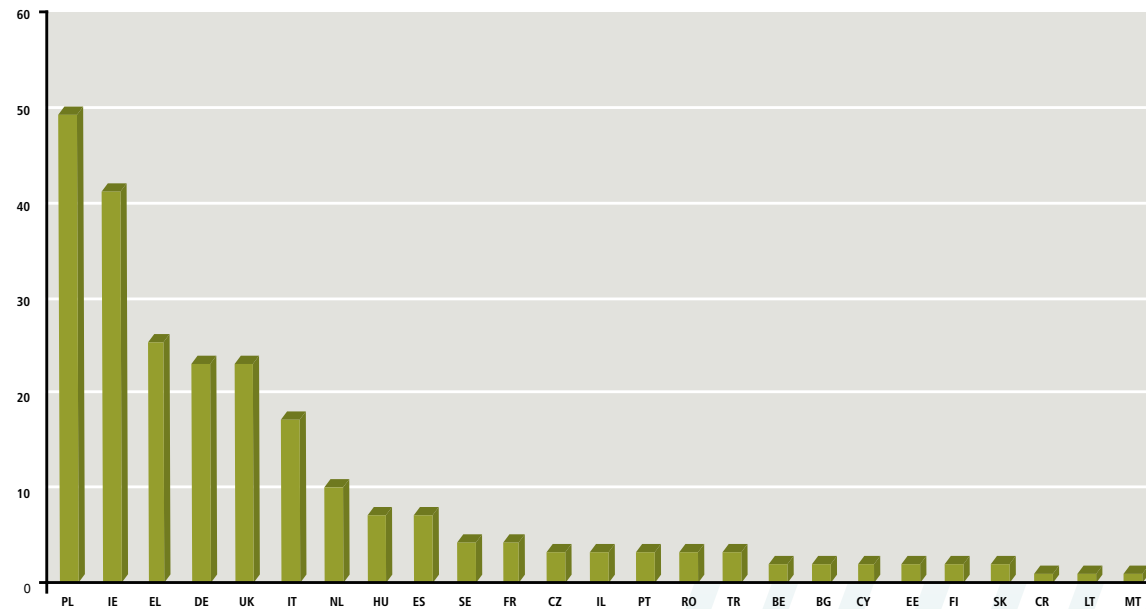
Dr Maria Siwek, for her part, said the GoMilkSicily project, and the S.En. Fi.Mi.Zo. Department in particular, afforded her the opportunity to work in a specialised environment with state-of-the-art laboratory equipment. Since the start of 2006,

Maria, an expert scientist in the field of molecular genetics, has worked with eight graduate students aiming to hone their scientific skills in the area of molecular genetic technology.

"Participating in GoMilkSicily gives me great pleasure and an amazing feeling of expanding my scientific

perspectives," she said. "GoMilkSicily created an extremely international group by bringing together scientific experts and senior researchers from different countries, cultures and working habits into one spot." Maria enthused how this experience will propel her research in the world of science.

MAIN LOCATION OF TOK-DEV PROJECTS PER COUNTRY



Source: Contract monitoring analysis of Marie Curie Host Fellowships (EST and TOK) in the Sixth Framework Programme, DG Research working document, August 2006

Regulation and variability of animal genome expression (RIVAGE)

Type of project:

Marie Curie Host Fellowship for Early Stage Training / multi-partner project

Website: <http://www.jouy.inra.fr/rivage>

Host & coordinator:

Institut National de la Recherche Agronomique
Domaine de Vilvert
F-78352 Jouy-en-Josas Cedex

EC financial contribution: € 1 328 935

Number of fellows: 13

Project duration: 2004 – 2008

Contact:

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CULTIVATING YOUNG MINDS

Nestled in a lush green valley on the outskirts of Versailles lies one of the oldest centres of France's National Institute of Agricultural Research (INRA). This centre is playing host to the RIVAGE project, which is nurturing the dreams and aspirations of 13 young researchers from across Europe and beyond.

thinking; it is about introducing scientists to thinking about the various ways of conducting research and to think in terms of European research."

It is not unusual for scientists to utilise tools and methodologies from other disciplines. What is less common, however, is to have a solid background in two diverse disciplines, physiology and genetics, which allows the researcher to think in a completely new direction. RIVAGE is doing just this, thereby creating a new platform in the field of animal science.

"We are pleased to see that our Marie Curie fellows have attained this background," says Dr Mambrini. "We can see that already they are more open to different ideas and concepts, they are better prepared to build their careers and are not lost between disciplines."

This fact is not lost on the fellows either. Florian Rambow came from Germany to join the RIVAGE network. "On the one hand you have to specialise," he said, "but if you want to become a lab leader you

RIVAGE (Regulation and variability of animal genome expression) is the culmination of the combined vision of a team of academics lead by Dr Muriel Mambrini and Dr Xavier Vignon at INRA. It aims to merge animal genetics and physiology approaches for identifying the general mechanisms governing genome expression and for proposing novel approaches of animal selection.

"RIVAGE is more than an acronym," says Dr Mambrini. "It is a way of



"The students are looking to match their skills with the needs of European industry and academia, [which] helps researchers remain in Europe as they realise the depth of opportunities available to them."

GIULIETTA MINOZZI



Photos: © European Commission

need a global understanding. For that reason inter-disciplinarity is not a choice, it is a requirement."

The 13 fellows involved were selected based on their passion and desire to experience a new discipline. Upon arriving at the institute, they were immersed in an intensive two-week language course. The opportunity to learn French was a bonus for Florian. "Not only will I get my PhD, but I will have also learnt another language, which will undoubtedly be beneficial to me in the years to come," he says.

All fellows benefited from a specially tailored education programme centred on three main issues: disciplinary training in the new field, openness to other disciplines and more importantly, care about their future career. "We were free to choose from a variety of different training modules, from practical training to theoretical training modules, as long as they are project related," Italian fellow Giulietta Minozzi says.

The students are also free to work with various collaborative partners

related to their projects. Giulietta, for example, collaborated with the University of Wageningen. The decision was made after organising a RIVAGE day, one of the special events organised by the PhD students themselves. "These are exciting events for us as we get to invite speakers here to give us a special presentation and from this, collaborative networks can be built."

Supervisor Xavier Vignon has seen his fair share of young scientists pass before him. One thing that he has noticed over the years is that "often the young researchers don't want to confront the inevitability that their PhD is ending, so when it does end, they find themselves suddenly looking to further their research career which may lead to some leaving for the USA. By making them think about the future, the students are looking to match their skills with the needs of European industry and academia, something which in effect helps researchers remain in Europe as they realise the depth of opportunities available to them."

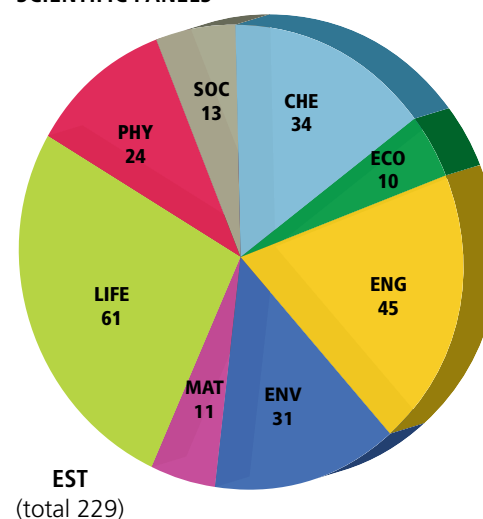
"I am very keen to work in collaboration with industry in the

future," said Giulietta, who is focusing her field of study on a very topical subject: breeding to increase disease resistance in chickens. Her research will place her on the front line in protecting our food supply from various diseases. RIVAGE career days afforded all students the opportunity to meet with industry leaders, find out about their needs and tailor their knowledge-building accordingly.

The project also sees to the needs of students who come from outside Europe, including Russia and Turkey. For Andrey Pichugin from Russia, it was an even greater challenge coming to a completely different culture with a different study and research methodology. But as he says, "Sure, it might have been easier to stay in my comfort zone, but life without adventure and challenges would be boring."

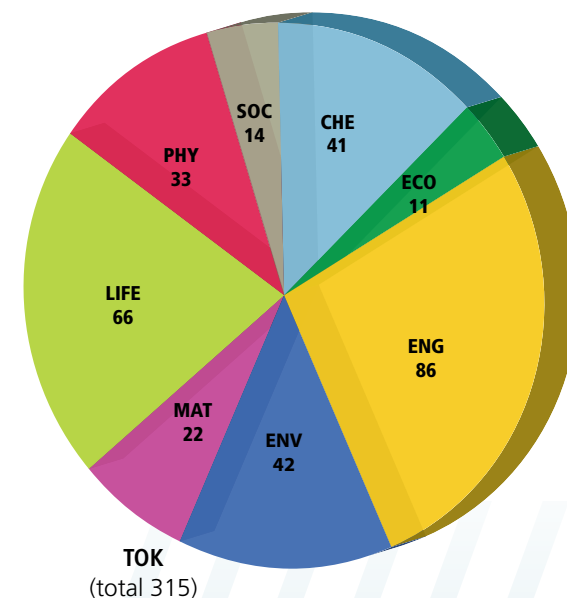
RIVAGE has had a profound effect on the supervisors as well. "This has been a learning experience for all of us, and this interchange of ideas will lay the foundation for the future of European research as it will be these students who will be among the leaders forming a common platform for research in the future," they say.

DISTRIBUTION OF PROJECTS ACROSS THE EIGHT SCIENTIFIC PANELS



CHE: chemistry, ECO: economic sciences, ENG: information science and engineering, ENV: environmental and geo-sciences, MAT: mathematics, LIFE: life sciences, PHY: physics, SOC: social and human sciences.

Source: Contract monitoring analysis of Marie Curie Host Fellowships (EST and TOK) in the Sixth Framework Programme, DG Research working document, August 2006



A BURNING APPETITE FOR SCIENCE

Photos: © European Commission



“Marie Curie has offered us excellent working contacts with scientists from different research centres.”

LUIGI TECCE AND JOZEF JAROSINSKI

At the Technical University of Lodz, a team of dedicated researchers is fuelling the fires of research through their pioneering exploration of the science of flame propagation. Sparked by the Polish National Contact Point for participation in the EU framework programmes, which informed them of the Marie Curie Actions, the ECHTRA Transfer of Knowledge project is now well underway.

The coordinator, Professor Jozef Jarosinski, is exhilarated with the ongoing success of his project. “Discovering that support would be available inspired us to commence the project and since then Marie Curie has offered us excellent working contacts with scientists from different research centres,” he commented. “Their support made it possible to send young scientific workers for unique, highly professional training with partner organisations and to establish contacts with foreign scientists for the exchange of knowledge.”

The team is conducting extensive research into the mechanisms of flame propagation in order to avoid local flame extinction in the most common and practical combustion systems. These can be found in the internal combustion engine or in industrial applications such as the burners found in various power plants.

With 13 articles published, the project’s scientific outcomes have been presented at numerous meetings and conferences, where its trailblazing work is attracting considerable interest. This is particularly true of the team’s investigations into flame quenching by the wall of the combustion chamber, which is relatively cold, as well as its study of the mechanics behind flame propagation and extinction in a swirling flammable mixture.

“The problem of local flame quenching is very important, as it is a contributor to increased levels of toxic component emission of the combustion gases in engine or burner applications,” said Prof. Jarosinski.

As a result, many researchers have been attracted from abroad. One of them is Luigi Tecce from Italy, who contributed to the project through the numerical simulation of flame propagation and extinction in different kinds of channel.

“My experience here has been pleasant and educative,” observed Luigi. “The experience I have gained here is great for my career, and it has also been really interesting to work in a top-notch research group. Thanks to the Marie Curie programme, I was able to move to a new country and be part of a research programme which has helped it become a major pillar of scientific research within the European community.”

European Commission

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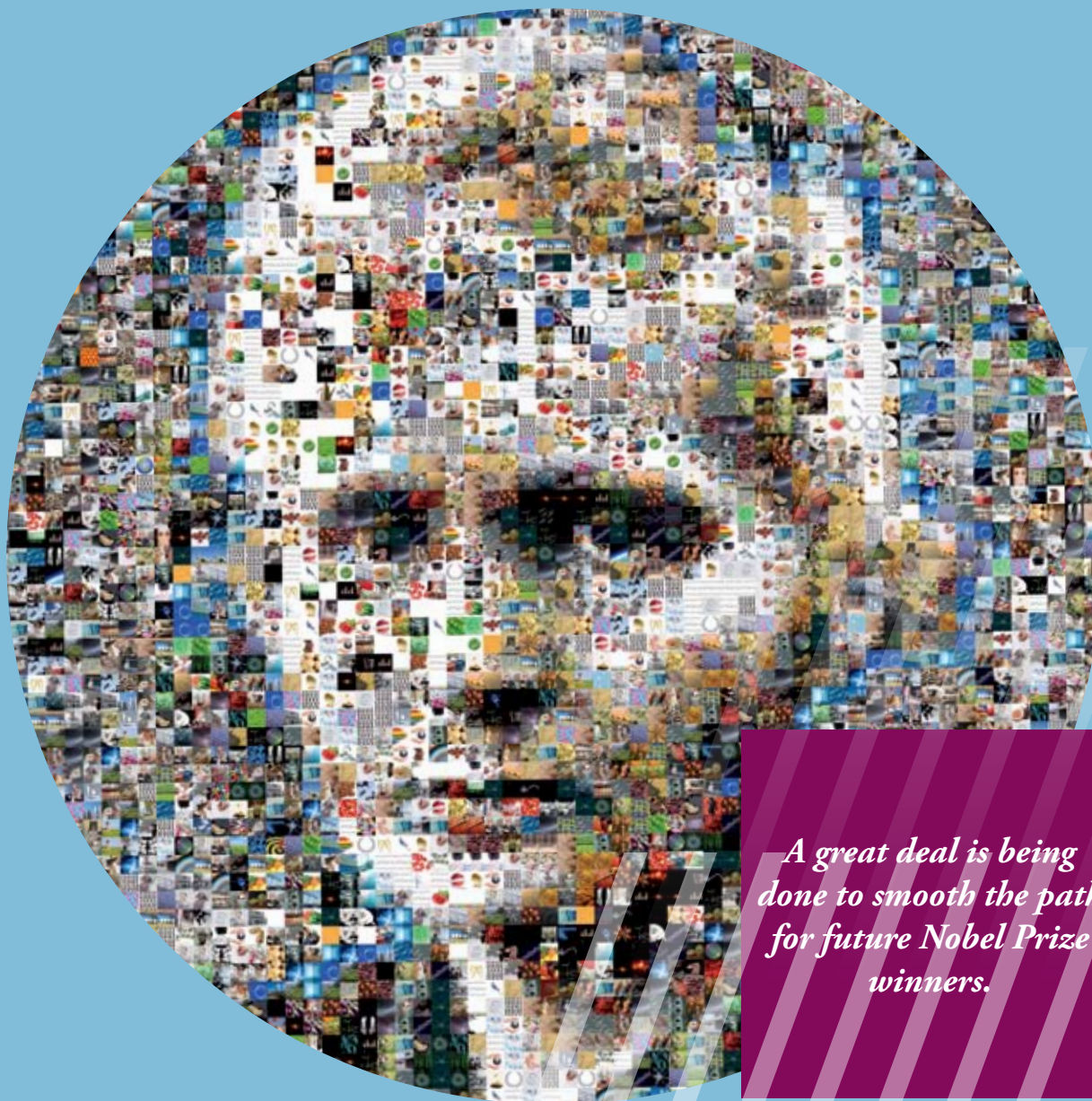
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