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ECIU ENTICEment for summer schools

The ENTICE project was formally launched at Scotland-Europa House in Brussels on 21 March 2007 by Jack McConnell, First Minister of Scotland. ENTICE (European Network Transforming Intra-university Collaborative Exchange), proposed and directed by the University of Strathclyde, is an ECIU partnership project involving Strathclyde and the Universities of Autònoma de Barcelona, Dortmund, Aveiro and Twente.

All the universities have embraced a "summer school" philosophy for secondary school students in their hinterland to motivate students to perform better at school, improve their success rates in national examinations, and help them realise their aspiration to enter Higher Education. This innovative approach to widening access is based on offering the young people a relatively short, but very intensive, educational experience where they engage with demanding activities designed to develop competences and skills and foster teamwork, collaboration and interpersonal development - supported at all times by trained undergraduate mentors.

Such a demanding experience relies on the provision of quality educational resource materials. This is where ENTICE will play a critical role. Members of staff from the five universities will collaboratively develop "versioned" educational resources or "challenges". These will focus on key environmental and social issues and will be designed for use at any of the summer schools. ECIU funding will enable staff to meet initially and identify five challenges, one proposed from each of the partner universities. The consortium will apply for EU funding to allow the challenges to be collaboratively developed and trialed in each proposing university during summer 2007. The challenges will be refined during late 2007, will be the focus of mentor training during early 2008, and will be delivered in all of the participating universities by mentors on an exchange programme during summer 2008.

This process offers the added benefit of supporting staff development in educational resource creation, stimulating academic cooperation and collaboration, and



Attendees at ENTICE (left to right): Isabel Martins, vice rector, Aveiro; Jack McConnell, First Minister of Scotland; Christine Percival, Director S@S, Strathclyde; Bex Graham, former student at S@S; Liam Hastie, former mentor at S@S; Pieter Binsbergen, Secretary, Twente.

facilitating the interchange of staff and students across the European university system.

The first resources will be concerned with Renewable Energy - a highly contentious contemporary issue which requires the careful creation, selection and integration of unbiased resources.

At the launch, First Minister McConnell (who was involved in the University of Strathclyde's Summer Academy in 2000) warmly welcomed this initiative to widening university access and promoting European cooperation and collaboration. As someone committed to ensuring enhanced life prospects for youth, he was confident that ENTICE was a significant step to improving the educational development of young people in Europe and the type of initiative that should attract EU funding.

Christine Percival, Strathclyde

Research profile: Aalborg University

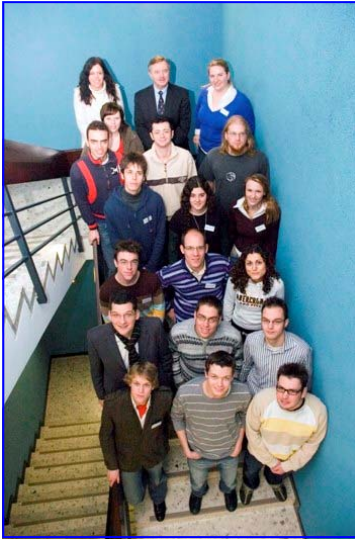
The latest in our series of ECIU research profiles has been provided by Aalborg University, Denmark. Aalborg is one of Denmark's leading universities in terms of uncovering innovative ways of cooperating with the surrounding world. Further information can be found in the research profile supplement.

Please mail articles or other input for the next ECIU newsletter to:

saskia.hansen@strath.ac.uk

The next edition will be published in June.

Deadline for submitting articles: **1 June 2007.**



ECIU Student Mobility Symposium

The first ECIU Student Mobility Symposium took place at Universität Dortmund in February.

Sixteen students from various ECIU universities (Barcelona, Hamburg-Harburg, Strathclyde, Swinburne, Twente and Torino) came together in Dortmund to spend a weekend with a programme designed in cooperation between Twente and Dortmund. Students took part in various lectures on entrepreneurship, and during their visit to Twente also had a chance to work on a business plan with Twente alumni

who started their own businesses. The programme was complemented by a workshop on intercultural competence.

The students gave very positive feedback and also thought about steps to promote the ECIU more effectively among their fellow students. The Symposium can be considered a success and it is hoped that the students who took part will serve as encouraging ambassadors for the ECIU in their respective universities.

Ole Lünemann, Dortmund

Rostov becomes Southern Federal University

The ECIU Associate Partner Rostov State University (RSU) has been reorganised into Southern Federal University (SFU) by the Russian government decree within the National Priorities State Programme.

Besides RSU, three other institutions in Rostov Region – Taganrog State Radio-Engineering University, Rostov State Teachers Training University and Rostov State Academy of Architecture and Arts - have been incorporated into Southern Federal University.

Only two such universities have been established in Russia – Southern Federal University in the south of Russia and Siberian Federal University in Krasnoyarsk, Eastern Siberia.

The restructuring of universities has been undertaken with the aim of enhancing the competitiveness of regional economy, training highly qualified specialists, strengthening research and academic ties with foreign countries and creating an entrepreneurial university.

Professor Vladislav Zakharevich, a former rector of Taganrog State Radio-Engineering University, has been appointed SFU rector. Professor Alexander Belokon, a former rector of Rostov State University, has been appointed SFU President.

Southern Federal University is a legal successor of Rostov State University and has confirmed its commitments to foreign partners.

ECIU and Pyeongtaek sign Memorandum of Understanding

On 29 January, the ECIU Speaker Professor Becker signed a Memorandum of Understanding with Pyeongtaek University in Seoul, South Korea.

The MoU highlights the intention of a subset of ECIU institutions to work closely with Pyeongtaek to develop undergraduate and postgraduate programmes in the areas of logistics, business and leadership, and to develop short courses for continued professional development. The universities of Aalborg, Linköping, Twente, Strathclyde, the UAB and TUHH all hope also to engage in student exchanges and to promote Korean culture and language in Europe, and European cultures and languages in South Korea, as part of the collaboration. A long-term ambition is to develop a European campus as part of the envisaged expansion of Pyeongtaek University in the city of Pyeongtaek.

A steering committee has been set up by the above institutions, chaired by Pieter Binsbergen from Twente. If you have any questions about the project, please contact the ECIU Secretariat.

Saskia Loer Hansen, ECIU Secretariat



Professor Becker

Exchange programmes motivate students to continue studies

Students who have participated in the European exchange programme Erasmus are twice as likely as other students to continue education after graduation. This is indicated by a recent assessment announced by the European Commission.

Employers also have a favourable attitude toward Erasmus students, and at least 20% of the 2000/01 Erasmus students found jobs with an international profile. "The findings of the assessment team agree with our experience here at our university," says Janerik Lundqvist, associate professor and Linköping's international coordinator. He continues, "We note that many of our exchange students return for research studies. Their time abroad provides a broader scientific reference framework and strengthens independent thinking. These qualities benefit a candidate for research training."

Richard Mikaelsson is himself a postgrad student in the Department of Management and Engineering. A few years back, he was an Erasmus exchange student in England. He confirms that exchange students are—generally speaking—independent and competent individuals who gain career merit through foreign studies.

"However," he adds, "we see a declining interest among present students. I find it hard to understand why. Studies abroad is a perfect opportunity to further one's education while gaining valuable life experience."

The EU assessment team has also assessed the effects of the Erasmus programme on the participating teaching staff. Of the university instructors who chose to participate in an exchange programme, 58% reported that the experience benefited their professional development.

Source: Linköping press release, 09/02/07

Further information: <http://www.liu.se/en/information/news.html#5094>

Erasmus is 20 years old

The Erasmus programme celebrates its 20th anniversary in 2007.

Further information: http://ec.europa.eu/education/news/erasmus20_en.html

Development of Australian National Diploma Supplement

On 10 January 2007, the Minister for Education, Science and Training, the Hon Julie Bishop MP, announced that a consortium of universities had been commissioned to develop a single agreed template for an Australian Diploma Supplement. The successful consortium represents 14 universities including Swinburne University of Technology.

Professor Margaret Mazzolini, (pictured) Deputy Head, Higher Education will be representing Swinburne in this consortium. In Minister Bishop's press announcement, she explained that development of the Australian Diploma Supplement is a government initiative in response to feedback from the discussion paper, 'The Bologna Process and Australia: Next Steps'.

To review progress to date on the development and implementation of the Diploma Supplement within the European Higher Education Area, the Consortium

has established an international reference group to assist in identifying key documentation and ensure that access to the most up-to-date information. Prof. Dr. Ulrich Killat, Technische Universität Hamburg-Harburg, Germany (an ECIU member) is a member of this group.

The Vice Chancellor of Swinburne will be speaking on this subject at the ECIU General Meeting in May.

Sue Fujino, Swinburne



Professor Mazzolini

European Research Council launched

The European Research Council was launched formally at a conference in Berlin at the end of February.

The European Research Council, the first pan-European funding organisation to support frontier research across all fields of science and scholarship is now a reality. The formal act of establishment has been adopted by the European Commission and the first call for proposals, focused on researchers early on in their careers, has been launched, offering nearly €300m of direct grants in 2007.

By inviting the most original minds to push the boundaries of current knowledge, the ERC can open the way

for new discoveries that can help Europe answer its pressing social, environmental and economic challenges. For the first time, the European Union will have a dedicated funding instrument for frontier research, offering support to the best ideas, irrespective of geographical origin and not organised in predetermined themes.

The ERC has been established by the Ideas programme of the Seventh Framework Programme.

Source: ERC press release, 22/02/07

Further information:

ERC website <http://erc.europa.eu>

Monterrey and Landsteiner Scientific to develop biotech products

Mexico's major challenge over the next few years is not only to conduct research, but applied research. The Tecnológico de Monterrey and Landsteiner Scientific have signed an agreement which marks their contribution to the country's development.

A collaboration deal with the Mexican drug company, which involves the Monterrey Campus' Biotech Center (CBT) in developing and producing various biotech drugs, was signed in January.

Monterrey Metropolitan Region President Dr. Alberto Bustani signed the agreement on behalf of the Tecnológico de Monterrey, while Landsteiner Scientific CEO Mr. Miguel Ángel Granados did the honours for his company. "We're signing a collaboration deal which will not end up stashed away in a desk drawer, but is something that will reach the market in an imminent area of opportunity for Mexico: biotechnology, phar-



maceutical biotechnology to be precise," stated CBT Director Dr. Mario Álvarez.

The first joint project is due to be completed in 12 months.

Source: Monterrey press release, 09/02/07

Further information: <http://cmportal.itesm.mx/wps/portal/english>

Al Gore and Hans Blix accept honorary doctorates from Aalborg

During their visit to Aalborg University (AAU), Denmark in January, both Al Gore and Hans Blix accepted honorary doctorates.



Al Gore at Aalborg

It was a pure academic event for students and teachers when former Vice President of the United States, Al Gore, and former weapons inspector from the UN, Hans Blix, visited Aalborg University on Wednesday. They both gave guest lectures on climatic changes and environmental issues in the world's focal points. Subsequent to this event, the two distinguished men were appointed honorary doctors at Aalborg University. It is a title which among others is given to people who have contributed extraordinarily to the advancement of science.

"Al Gore has quite simply put this issue on the agenda to a degree which helps increase the focus we have had here at Aalborg University for many years: attending to the limited resources of our planet, and increasing attention towards sustained energy sources," says Dean Frede Blaabjerg, who took part in nominating Al Gore for the honorary title.

The nomination of Al Gore was motivated amongst other reasons by the fact that he has assumed the important task of spokesman for problems of climatic change and the possible solutions. Gore has contributed markedly to the debate and to placing climatic changes on the international agenda, in science, among politicians and in the public sphere. According to Dean Frede Blaabjerg, the appointment emphasises the University's distinctive profile within energy and environment also in an international perspective.

Al Gore's Oscar-winning film about climate change, *An Inconvenient Truth*, has now been distributed to Danish secondary schools in an initiative taken by AAU to encourage teachers and students to engage in discussion of how we protect our planet in the future.

During the event at Aalborg Congress & Culture Centre, Hans Blix was also appointed honorary doctor for his efforts in world politics, including in the UN framework. Blix was nominated for the title by the Faculty of Social Sciences at AAU. The motivation behind the nomination was that Blix, as the UN's weapons inspector in Iraq, demonstrated the best academic traditions in his thorough and objective search for facts and sources to confirm or invalidate the theories of the outside world about weapons of mass destruction in Iraq, Dean Allan Næs Gjerding explained.

"In addition, Hans Blix displayed a unique human and academic integrity when he was presenting his findings to the UN and the world. His courage to maintain his independently formed scientific-based perception was worthy of a Galileo Galilei," Allan Næs Gjerding said. "I hope that – not merely at Aalborg University – but all over the world where the truth is valued, students and scientists will be inspired by such persistence and integrity which Hans Blix has demonstrated."

Lotte Fink, Aalborg

Excellence in Aveiro research rewarded internationally

Three Professors of the University of Aveiro were recently distinguished by international organisations for their research quality.

José Grácio and Rui Cardoso, Professors at the Department of Mechanical Engineering, were awarded the Unrestricted Award for High Level Professional Research on Plastic Deformation and Fracture Mechanics by the Aluminium Company of America. The prize holds even greater importance for Aveiro, since it is very rarely granted to researchers working outside America.

This distinction reflects the excellent work these researchers, already awarded other prizes, have been developing in the areas of Plastic Deformation and Fracture Mechanics, mainly in aluminium alloys. The Sigma Xi Prize, for instance, recognised one of their articles as the best scientific article published in 2006 in the International Journal of Plasticity. And the computational model CYSE developed by Professor Rui Cardoso is frequently referred to by computational mechanics researchers all over the world.

Professor José Grácio coordinates a European research project on the development and characterisation of aluminium alloys for the car industry, in partnership with R&D organisations in China and Japan. This project has been very successful in developing aluminium alloys with high rates of resistibility and plasticity.

José Carlos Pedro, professor and researcher at the Department of Electronics, Telecommunications and Informatics, and at the Institute of Telecommunications

– Aveiro Unit, was distinguished with the title of Fellow Member by the Institute of Electrical and Electronics Engineers, Inc. (IEEE), the most renowned international organisation in the area of electronic engineering.

Professor Pedro's research work in the field of non-linear distortion analysis of tools and circuits, RF and microwaves, was key to this most prestigious attribution. To become a Fellow of the IEEE is a great honour: the title is given to a very restricted number of Senior Members who have contributed enormously to the technologies and electrical and information sciences, in benefit of humankind and the profession. In Portugal there are only three Portuguese researchers with the privileged title.

Well known at international level, Professor José Carlos is already a reference researcher in the field of analysis and RF circuits and non-linear microwaves. This area grows in importance in the conception of modern wireless communication systems.

For Professor José Carlos Pedro, to be distinguished with the title of "Fellow Member" means recognition for research work he has been doing since 1992. "It also recognises the effort and dedication of the research team I've been leading. This distinction is also for the University and the Institute of Telecommunications for the support and excellent infrastructures and facilities available for my research work".

Liliana Oliveira, Aveiro

Sweet smell of success



Fraser Doherty was just 14 when he began using his grandmother's recipes to make jam in his family kitchen. Five years on, the Strathclyde Accountancy & Business student has secured a lucrative 120,000-jar contact with a major supermarket and won a national award for innovation.

Fraser has become one of the youngest entrepreneurs ever to supply a UK supermarket following the deal. His range of 'SuperJams' - which use grape juice to sweeten the fruit instead of sugar or sweeteners - will soon be available from 130 branches of Waitrose.

"I'm hoping my products will encourage a new generation of jam fans, and that it might inspire other young people with a business passion to go for it," said Fraser. "The reason I wanted to study at Strathclyde was because of its entrepreneurial opportunities - it's about more than just studying for a degree and that suits my outlook."

Fraser's hard work was rewarded at the glittering Biggart Baillie Innovation Awards held at Glasgow Science

Centre recently, where he scooped first prize in the Best Student category. He was joined by three finalists, two of whom also study at Strathclyde. He is now about to begin an internship with Strathclyde's Hunter Centre for Entrepreneurship and is looking to further expand his jam business. He is being supported by essential, the Strathclyde Entrepreneurial Network.

Chris Moule, essential Knowledge Transfer Practitioner, said: "Fraser's latest award is recognition of the dedication he has demonstrated over the past five years. It's a great example to other young entrepreneurs who are trying to get their products and services to the market."

Fraser saw the market for good jam from a young age. At 15, he was cooking up to a thousand jars a week from his home, selling his products at farmers markets and supplying delicatessens across Scotland.

Once the Waitrose deal was agreed, he set about sourcing new premises and has forged a partnership with a jam factory in Herefordshire which will allow him to retain full control over the production process.

Source: Strathclyde feature article, March 2007
Further information: <http://www.strath.ac.uk/features/jam/>

A whistling sound can save your life

PhD students from Aalborg University (AAU) have discovered a method which warns if you are about to suffer a blood clot. This innovative technique gives doctors the opportunity to identify blood clots before they strike, and to treat them pre-emptively.

At the Faculty of Engineering, Science and Medicine at AAU, PhD students from the Department of Health Science and Technology, Samuel Schmidt and Claus Graff, have made a life-saving invention. It consists of an advanced screening method that via sound may reveal a blood clot approaching. Hence, careful listening may save lives. This method is so sophisticated and highly developed that a general practitioner can use it without having to conduct expensive examinations. The latter becomes superfluous once this product hits the market: danger is revealed in advance, and lives may be saved - along with taxpayers' money.

"Approximately 25% of people who die from arteriosclerosis-related diseases were never informed that they were at risk," Samuel Schmidt explains. Patients are only sent to hospital for examination if their general practitioner has strong suspicions that they are in danger of suffering a blood clot. Therefore, without a secure, efficient and cheap method to decide whether patients are safe, potentially ill people are sent home.

When Samuel Schmidt and Claus Graff wrote their master's thesis, their supervisor suggested that they work with digital stethoscopes. From this suggestion arose their idea to discover an easy and precise method to prevent blood clots from appearing.

Samuel Schmidt compares the method with a garden hose: "If one holds back the water by squeezing one's fingers against the hose, one will hear a whistling sound. This is because of the turbulence which occurs



Samuel Schmidt and Claus Graff (front)

when water runs through a pipe." Inside the blood vessels, this sound is so faint that one would never be able to hear it using only one's ears.

However, the two PhD students' invention makes it possible to record the sound through a digital stethoscope and process it on a computer. Small murmurs may then be detected, and they will reveal clotted areas in the vessels surrounding the heart.

"Digital stethoscopes already exist," Samuel Schmidt says. "However, we have developed software and calculation models which enable us to use these stethoscopes in a new way." This 'new way', as Mr Schmidt so modestly puts it, may in fact heavily reduce the number one cause of death in Europe: 22% of Europeans die from arteriosclerosis-related diseases.

Presently, the two PhD students will be holding meetings with business investors and partners to ensure that the invention hits the markets. Doctors who have learnt of the project unanimously pronounce: We must have this system, the sooner the better!

Lotte Fink, Aalborg

Research into aviation takes off at TUHH

The Technische Universität Hamburg-Harburg (TUHH) is undertaking significant development of its research activities in aviation systems. In Germany, the city of Hamburg is readily associated with aircraft, and this relationship provides a strong motivation for this type of development and concentration of research activities.

Until now, important subsystems were researched and experiments carried out in the Institut für Flugzeug-Systemtechnik (Institute for Aircraft Systems Technology), led by Professor Udo Carl. In April, Professor Frank Thielecke will arrive in Hamburg to develop this research work further. But that is not all.

To the external audience, aviation research is currently represented by the professorship and the Institut für Flugzeug-Systemtechnik. Now, three new institutes are being created and will be led by young researchers: this represents a true spirit of optimism and a com-

pletely new direction in this research area at TUHH.

The new institutes are:

- Flugzeug-Kabinensysteme (Aircraft cabin systems)
- Flugzeug-Produktionstechnik (Aircraft production engineering)
- Lufttransportsystem (Air transportation systems)

The German Centre for Aviation and Space Travel (Deutsches Zentrum für Luft- und Raumfahrt; DLR) is a large-scale research facility in Germany based in several different locations and with research strengths in aviation. Until now, Hamburg has not been one of these locations: however, that is all about to change. In collaboration with the DLR, the Institut für Lufttransportsystem (Air transportation systems) will be established: an institute director will take up duties in the next few months.

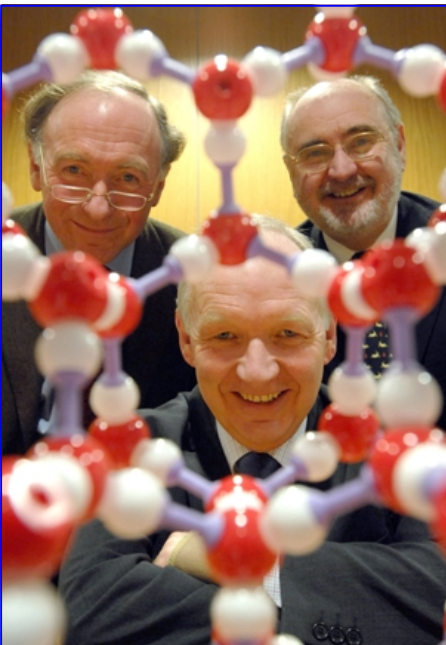
(Continued on page 7)

New collaboration in UK hydrogen energy research

A pioneering hydrogen energy project, part of the Birmingham Science City initiative, was unveiled at a top-level Science City Summit in Newcastle in February.

The project, which has just received funding of £6.3 million from Regional Development Agency Advantage West Midlands, will develop the use of hydrogen energy as a green fuel. The project is the first capital activity to be funded as part of the *Birmingham Science City* initiative.

The Hydrogen Energy Project, part of an 'Energy Futures' collaboration between the Universities of Birmingham and Warwick, will bring together and build on existing research excellence and will position the West Midlands as an internationally leading research centre for hydrogen energy.



L to R: Prof Michael Clarke Vice Principal University of Birmingham, John Edwards Chief Executive AWM, and Stuart Palmer Vice Principal University of Warwick.

With the continued threat of global warming, hydrogen energy is seen as one of the best ways of generating

energy without producing excessive amounts of carbon or greenhouse gases.

The new project will research how hydrogen energy can be generated, stored and used as a power source in buildings and transport. The grant will fund equipment and facilities at the two universities so that they can further research and develop demonstrator projects with public and private sector partners. A key area of activity will be looking at ways of producing and storing hydrogen using sustainable methods, such as by electrolysis of water and from biomass.

The Science City initiative aims to pull together world class science and technology within a city and its region and provide that talent with support for new research that will deliver great economic and quality of life benefits not just to the City and the region, but also the country as a whole.

John Edwards, Chief Executive at Advantage West Midlands said: "As well as creating high level jobs and cementing the West Midlands' reputation as the lead centre for Hydrogen Energy research, this project will lead to exciting collaborations between the two universities and regional businesses. This is enormously exciting as combining the research capabilities of two leading universities puts them on a footing with other world class research establishments."

Professor Mark Smith from the University of Warwick said: "Hydrogen based power generation is a key technology that promises to provide relief from the world's dependence on expensive and environmentally damaging fossil fuels."

This award is just the beginning of a wide ranging "Energy Futures Programme" research collaboration between the Universities of Birmingham and Warwick that will encompass over 40 researchers in nine academic departments.

Source: Warwick press release, 02/02/07

Further information: www2.warwick.ac.uk/newsandevents/pressreleases/new_collaboration_set/

Aviation research takes off at TUHH

(Continued from page 6)

The Institut für Flugzeug-Kabinensysteme (Aircraft cabin systems) is a further piece in TUHH's aviation research jigsaw. This institute will receive funding for the next five years from Airbus Deutschland GmbH. Aircraft cabin systems is a multi-faceted and wide-ranging area of research: it poses many different questions which need to be looked at and answered through a holistic approach to the subject.

The Institut für Flugzeug-Produktionstechnik (Aircraft production engineering) will research completely new areas in the construction of large-scale aircraft compo-

nents. Thanks to the successful development and implementation of fibre reinforced composites, completely new questions are posed in aircraft construction: this institute will grapple with these issues.

New colleagues will work closely with other institutes at TUHH which specialise in related research areas such as climate systems, the testing of non-destructive materials, acoustics, production engineering, communications, and electromagnetic compatibility.

Source: TUHH press release, 14/02/07 (Prof. Dr Hermann Rohling)

Further information: www.tu-harburg.de/forschung/luftfahrt/aktuell.html

UAB thesis analyses production and use of biofuels

Daniela Russi, a doctoral student at the Universitat Autònoma de Barcelona (UAB) Department of Economics and History of Economics, has prepared a thesis to study the environmental consequences of the production and use of biofuels derived from energy crops. Her paper, "Social Multi-Criteria Evaluation and Renewable Energy Policies", concludes that using public funding to support large-scale biofuel production is not an advisable strategy. She warns of the danger of presenting biofuels as a magic wand to solve problems such as oil prices, climate change, energy security and urban pollution.

The thesis, to be defended by Daniela Russi in March, is an in-depth study of the environmental consequences of European Union policy to promote the production and use of biofuels. Russi argues that possible energy savings are not as high as they may seem. In some cases, energy consumption (and therefore greenhouse gas emissions) may even be higher than with traditional energy sources.

In fact, according to Russi, fossil fuels are used in all the production phases of biofuels: the agriculture of the raw material (fertilisers, pesticides, machinery), the processing phase and the transport. At the same time, the paper warns of the significant social and economic implications on a global scale of biofuel production. Furthermore, Russi warns of the significant amounts of land that would be required for large-scale biofuels production. To achieve the objectives set by the EU in Council Directive 2003/30/EC (5.75% of energy used in transport—1.7% of total

energy consumption), approximately 1/5 of tillable land in Europe would be required. This is why the EU is considering promoting biofuel production (especially oilseeds, sugar cane and palm trees) in countries with tropical climates, with the risk of promoting huge monocultures with a strong environmental impact and deforestation processes.

In her conclusions, Russi is critical of public resources being invested in biofuels, especially given that this investment does not cover the recycling of used oil and agricultural waste, which she believes should be promoted in order to reduce the costs and impact of eliminating such waste and save energy. Russi believes the only way forward to reduce the negative impact of fossil fuel consumption is the implementation of energy-reduction policies.



Source: [UAB press release, 13/03/07](#)
Further information: www.uab.es, [Research news link](#)

Silica particle sparks life in protein

Tiny formless particles in water solution take on a well-ordered and functional structure as soon as they come into contact with nanoparticles of silica. A unique breakthrough by researchers at Linköping University (LiU) creates new potential in medicine and biochemistry and at the same time provides a new piece of the puzzle in theories about the origins of life.

Normally, inorganic materials like silica are unwellcome in biological systems, since they disrupt the form and function of proteins. "We wanted to reverse the thinking and try to design proteins that take on their function only after encountering an inorganic surface," says Bengt-Harald Jonsson, professor of molecular biotechnology.

The team designed a peptide (a short protein) with a specific distribution of positive charges. The peptide was mixed into a solution of spherical silica particles, about 9 nanometers (billionths of a meter) across. When the peptide was free in the solution it had no structure whatsoever, but when it connected with the negatively charged silica ball it assumed the form of a helix. The result was a complex of a silica particle and a functional protein.

When the researchers added amino acids to their peptide, the complex took on the properties of a catalyst, a function similar to that of enzymes in living cells. The method has several possible fields of application: recognition of organic molecules catalyzing of chemical reactions with precise control target-seeking particles for medical uses.

But the Linköping University scientists' successful experiment may also shed light on the eternal question of the origin of life. Particles of clay containing silica in the 'primeval soup' may have attracted unstructured peptides with amino acids attached and given rise to the first functional proteins. "We know that RNA (which plays a decisive role in the transfer of information in cells) can bind with clay particles whose surfaces have negative charges. The probability of peptides with amino acids having formed well-defined structures with the clay at an early stage of development is considerably greater, since they are more diversified than RNA is," says Bengt-Harald Jonsson.

Source: [Linköping press release, 19/12/06](#)

Further information: www.liu.se/en/information/news.html#5038

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www.polito.it

Universiteit Twente, The Netherlands

www.utwente.nl

University of Warwick, United Kingdom

www.warwick.ac.uk

Tecnológico de Monterrey, Mexico

www.itesm.mx

Southern Federal University, Russia (formerly
Rostov State University)

www.mis.rsu.ru/foreign

Swinburne University of Technology, Australia

www.swin.edu.au

European Institute of Technology

The EC has published an information leaflet about the European Institute of Technology (EIT). The pamphlet can be viewed at

http://ec.europa.eu/education/policies/educ/eit/doc/flyer_en.pdf

ECIU Annual Report 2006

The ECIU Annual Report 2006 is now available at <http://www.eciu.org/newsletter/ECIU%20Annual%20Report%202006.pdf>

Conferences

- 20-21 March 2007 Workshop on Intelligent Transportation, Hamburg-Harburg
- 17-19 April 2007 Meaning, Relevance and Variation: 2nd Nordic Conference on Adult Learning, Linköpings
- 17-21 June 2007 13th International Conference on Thinking, Linköpings
- 21-23 June 2007 European Computing and Philosophy Conference, Twente

ECIU Activities

A number of project meetings or seminars have taken or will take place over the coming months:

- ECIU Leadership Development III, 25-27 April, Strathclyde
- ECIU Student Wing, 14-15 May, Strathclyde
- ECIU General Meeting, 24 May, Rostov
- ECIU Executive Board meeting, 25 May, Rostov
- ECIU Marketing meeting, 28-29 June, Dortmund
- ECIU 10th Anniversary and Executive Board meeting, 31 October—2 November
- A series of meetings under the umbrella of the ECIU Graduate School

Please read more about the ECIU and these activities on the website: www.eciu.org

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