

IN BRIEF

EINSTEIN YEAR GETS OFF THE GROUND



Ben Wallace of Team Extreme performs the first-ever Einstein flip!

The Institute of Physics recently enlisted 18-year-old Ben Wallace to launch Einstein Year, the UK and Ireland's contribution to International Year of Physics 2005. A member of Team Extreme, one of the world's top BMX stunt teams, Wallace performed the first-ever

Einstein Flip, a stunt created with physicist Helen Czerski of Cambridge University, showing young people that physics can be cool.

'Cool' is not a word that many associate with physics today. Einstein Year is aimed at

changing that, especially for 11 to 14-year-olds, the main target audience for the activities. 2005 is also the centenary of Einstein's annus mirabilis, when his seminal papers on special relativity, the photoelectric effect and Brownian motion were published.

Caitlin Watson, project manager, says: "We hope to reach as many young people as possible during Einstein Year. But Einstein Year won't take the place of physics teaching in the classroom. Instead, it's about exposing young people to some new experiences of physics – ones they're unlikely to get at school!"

Move Over Einstein is a touring exhibition which will visit science museums, alongside less traditional spaces such as city museums and even shopping centres, to reach those who might not otherwise be exposed to physics.

The 2005 Faraday Lecture will be an interactive experience showing students how robots affect our world.

Find out about other Einstein Year events at: www.einsteinyear.org

TRANSPORT 2050

To help improve one of the worst transport systems in Europe, people should pay the real cost of every journey they make, according to a report published on 9th March 2005 by The Royal Academy of Engineering. *Transport 2050* presents the Academy's 50-year vision of the UK transport system and identifies actions to be taken now to combat congestion and control emissions in the long term. The report argues that implementation of transport policy should be the responsibility of independent effective agencies.

The report also maintains that for 'true-cost charging' the cost of journeys should reflect their actual costs in fuel, labour, maintaining and enhancing the system as well as their impacts on congestion and pollution. *Transport 2050* is available online at:

www.raeng.org.uk/transport2050

UK RESEARCH UNDER THE SPOTLIGHT

A panel of leading international engineers chaired by former Caltech President Professor Tom Everhart FEng has published its evaluation of UK engineering research.

The report – available at www.irer2004.org.uk – notes the excellent academic quality of the engineering research observed during the study but urges greater attention be given to its potential impact in order to maximise its benefit for the UK. Whilst observing that UK research was advancing the traditional fields of engineering – often in a world-class manner – the panel also felt that more could be done to build on recent discoveries in science.

The report also identifies the characteristics of the more highly regarded research groups, provides international comparisons, and makes recommendations for future actions.

YOUNG ENGINEER FOR BRITAIN

The next generation of engineers and inventors show their enterprise skills

18-year-old Alexander Warren, from John Hampden Grammar School in High Wycombe, walked off with both the title of Young Engineer for Britain 2004 and the YEDA Duke of York's Rose Bowl for the most creative electronics-based project plus £3,000, a laptop and entry to the 2005 Intel International Science and Engineering Fair (ISEF) in the USA.

The prizes were presented by TV personality Gareth Jones at the Annual Celebration of Engineering event held in Sir Christopher Wren's painted hall at the Old Royal Naval College, Greenwich. The showcase celebration brought together the best in UK student enterprise and engineering innovation at the finals of Young Engineers for Britain, Young

Engineers Club awards and the Junior Engineers K'Nex Challenge.

Alex's invention was a low-cost range-finding device fitted to a firefighter's helmet that utilises ultrasonics to locate objects in a smoke-filled room. Joining Alex at the Intel ISEF event in Phoenix, Arizona will be Richard Entwisle (also 18) from Canford School, Dorset, who developed an attachment for a wheelchair which raises the occupant to a convenient height when they approach reception desks or high tables. As part of his prize, Richard will be joining Urbis Lighting on a European engineering visit.

Nearly 100 pupils and students from 38 schools and colleges representing all corners of the UK attended the event, which

saw teams and individual winners from local and regional finals competing for £50,000 worth of prizes.

Over 55,000 primary pupils took part in this year's challenge representing 1700 schools. The primary K'Nex Challenge winners were Ysgol Deiniol from Wrexham, represented by two 10-year-olds, Megan and Simon, who made the long journey back to North Wales clutching huge K'Nex construction kits and flight tickets to see K'Nex being manufactured in the USA. The 2004 Club of the Year award winners, the Community College from Bishop's Cattle. Their club receives a prize of £1,000 and the Lloyd's Register European Engineering Experience in Berlin for finalists Ruth, Rebecca, Esme and Edward.

The complete list of winners and an entry form for the 2005 competition can be viewed at the Young Engineers website:

www.youngeng.org

FROM CONCEPT TO FINAL APPEARANCE:

The impact of new technologies on the design process

The idea of designing a car appeals to many young students. Naturally, very few of them, or their teachers, know or understand the processes and technologies involved in taking an idea from concept through to the manufacturing stage. The Ford Education Outreach and Community Team, based in the Technology Centre, Dunton, Essex, are proposing to hold a Technology Seminar with the purpose of helping teachers become aware of current technologies as they apply the design process.

During recent years, programme timing has reduced from about 60 to 36 months, and new technologies have contributed



From the concept...



...to the full size model

significantly to the design phase. For instance, the production of traditional graphic renderings is now supported by the application of software programs enabling 3D stereoscopic projection with unlimited image orientation. Traditional full-size modelling is accelerated utilising CNC milling, and highly representative prototype components can be achieved by object printing. Simply put, object printing produces prototype plastic components in a matter of hours, not months. Complex components are produced by the inclusion of a soluble material between plastic layers allowing for otherwise

impossible structures to be produced.

Teachers who attend this seminar will have the opportunity to better understand how science, engineering and technology topics (e.g. maths, physics, chemistry, IT and graphic design) support concept development to the point at which a full-size model is frozen (Final Appearance), and the detailed engineering process begins.

David Cayton

Projects Manager, Education Outreach and Community, Ford Motor Company, Dunton Technical Centre

AND FINALLY:

Academy's Visiting Professors' Scheme goes from strength to strength

Educating tomorrow's engineers is no easy task. Once, the acquisition of knowledge was the sole aim of higher education. Now, while still essential, it is no longer sufficient. Today's rapidly evolving technology requires our engineers to constantly update their skills and knowledge whilst applying that knowledge to ever more challenging problems.

The Academy addresses the needs of today's engineering students through the Visiting Professors' Scheme. Since the scheme's inception in 1989, more than 200 senior engineers have contributed their experience and expertise to enhance the teaching of undergraduates. The lessons learnt from these first 15 years are published in *Educating Engineers in Design*, which details the scheme's successes, and also explains how we can continue to educate outstanding young engineers in the UK. To view the report as a PDF visit: www.raeng.org.uk/education/vps

ACADEMY EVENTS FOR APRIL 2005

2005 Lloyds Register Lecture – Safety Appraisal Criteria

Thursday 14th April 2005, 6.30pm
Savoy Place, London, WC2R 0BL

Address by Professor Andrew Evans, Lloyd's Register Professor of Transport Risk Management, Department of Civil and Environmental Engineering, Imperial College. This lecture will focus on the appraisal of safety risks from a public policy perspective, looking at long-term trends in fatal accidents in transport and in other activities. To book your place, contact Salima Virani on: **020 7227 0540** or email: events@raeng.org.uk

Fossil Fuels

Thursday 20th April 2005, 2pm
29 Great Peter Street, SW1P

Chair: Professor Alan Williams CBE, FEng. This third seminar in the Energy Seminar series reviews the prospects for continued fossil use in the UK, looking at measures to

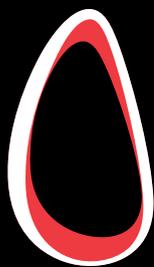
reduce emission impacts such as generation efficiency, cleaner coal, emissions trading and carbon sequestration.

This event is by invitation only; any spare places will be allocated at the Academy's discretion. To register for interest please contact Nick Wilson on: **020 7227 0575** or email: nicholas.wilson@raeng.org.uk

Engineers in Society

Monday 25th April 2005, 4.30pm
29 Great Peter Street, SW1P

Panel discussion with: Patricia Galloway, National President of the American Society of Civil Engineers; Marie-Noelle Barton, Director of the WISE Campaign; and Joanne Coleman, BA Festival of Science Manager. The panel members will discuss the role of the engineer in society, focusing on innovation, public policy, globalisation, risk management and the role of women in engineering. To book your place contact Amy Abbott on: **020 7227 0541** or email: events@raeng.org.uk



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