



PHYSICS IN IRELAND

The newsletter of the Institute of Physics in Ireland

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Physics in force at the BT Young Scientist and Technology Exhibition

The question for anyone visiting the fantastic Young Scientist and Technology Exhibition (YSTE) is, how on earth do you decide which of the hundreds of projects to go and see? Should it be the attention grabbing titles, such as “Beat the bookies”; the most interesting equipment (“Sore buster”); the ones which sound as if they include interesting physics (“To investigate how the light output from a bulb changes”); the excited students who can’t wait to talk to you (“Electronic safety helmet”); or your friend’s daughter’s project? Or the most efficient method (cheating): to wait until Saturday’s “post-awards” and find the rosettes on the winning projects. For this seasoned exhibitor, it is a judicious mix of all of the above. However, whether you see them all or just a few, you could not but appreciate the enthusiasm, imagination and perseverance common to all the students who have taken an active part in this remarkable range of science projects.

Almost 36 000 people visited the YSTE this year and had the chance to see all 520 projects on display, selected from over 1100 projects that had entered (with 107 on display in the chemical, physical and mathematical section).

Great excitement was generated at Simon Singh’s theatre of science with the 6 ft-long bolts of electricity on stage, the eating of creepy-crawlies, the world of robots and the myriad of hands-on activities



Above: Katie O’Donovan, Jennifer Martin and Orla Murphy were the winners of the Institute of Physics in Ireland Special Award. They are pictured with Neil Marks and Dr Robert Kirby-Harris. Top right: Paul Nugent gives demonstrations from Physics on Stage 3 at the Institute’s stand. Bottom right: school students look at spectra emitted by discharge lamps that were provided by Dublin City University.



in the “world of science and technology”. Also, bringing the fun of physics to visitors, there were two of the Institute’s Labs in a Lorry at the exhibition, giving hundreds of young people first-hand experience in working through fascinating physics experiments.

The Institute’s stand was the usual hive of activity with superb hands-on demonstrations covering astronomy, spectroscopy, sensors and medical physics, all built and demonstrated by physics departments in Dublin City University, the University of Limerick and Cork Institute of Technology. The easy-to-replicate “Physics on Stage” demonstrations were also in full force at the stand, being managed and run by school

students from St Dominic’s High School in Sutton, Confey College in Leixlip, Co. Kildare and Presentation College in Terenure, Dublin. The strength of the stand is firmly based on the excellent communication skills of all of the demonstrators who took part. They must be applauded for their commitment and enthusiasm in communicating with the thousands who visited the stand.

The Institute of Physics in Ireland Special Award (and also first prize in the Intermediate maths, physics and chemistry section) went to Orla Murphy, Katie O’Donovan and Jennifer Martin from Colaiste Choilm, Ballincollig, Co. Cork for their project “The maths of bubbles”. Orla Murphy had taken part in a workshop run by Prof. Stewart McCutcheon during a

scholarship visit to a Salters’ Chemistry Camp. From this workshop the idea for their project was born. The project presented by this enthusiastic and focused group was as follows. The students took five areas of maths and physics and applied them to bubbles. They used bubbles in practical experiments in each area of the project. The five areas they studied were: 2D and 3D frames and the relationship between the frames and the bubbles; the distribution of bubbles; the refraction of light through bubble film; the angles that bubbles form; and using bubbles to find the shortest distance between four points in a motorway problem.
Alison Hackett Institute representative

Munster Group is launched

As part of its Strategic Plan the Institute of Physics in Ireland has established a "Munster Group" as a pilot initiative to develop a higher profile for the Institute in the regions and provinces, thereby fostering more active involvement of the physics community in society at large. The group has representatives from almost all of the third level colleges in the Munster region and is focusing its attention on "primary science" and the Physics-Industry interface.

In order to mark the launch of the group a meeting is being organized on 1 June 2006 to commemorate the life and work of a famous Munster son, John Desmond Bernal, who was born in Nenagh, Co. Tipperary in 1901. The meeting will comprise a "Science and society" session with invited speakers addressing topics which featured strongly in the work of Bernal:

- Prof. A L Mackay (Birkbeck College) on the Bernal legacy;
- Prof. Martin Caffrey (University of Limerick) on molecular biology;
- Dr Helena Sheehan (Dublin City University) on science and philosophy;
- Prof. J L Finney (University College London) on the structure of water.

This session will be followed by a public lecture by Andrew Brown MD, whose book *J D Bernal: The Sage of Science* was recently published by Oxford University Press. A reviewer in *Nature* described it as: "A very fine (and large) book. Much more than a biography, because of Bernal's involvement in so many sociological issues of his day; it takes the form of a social history of the first half of the 20th century."

The meeting is being kindly hosted by the Limerick Institute of Technology. The College of Science of the University of Limerick and the Institute of Chemistry in Ireland have joined with the Institute of Physics in sponsoring it. Contact Dr Vincent Casey, e-mail: vincent.casey@ul.ie or Leah Wallace, e-mail: leah.wallace@lit.ie or visit <http://ireland.iop.org/bernal.html> for more details.

Teams battle it out in Paperclip Physics final

On 22 March seven school teams gathered in the Minerva Suite at the RDS to battle it out to be the winners of this year's Paperclip Physics competition. The teams made it through from heats held in Athlone, Dublin and Belfast.

For this competition students have to design and demonstrate an experiment to explain the physics behind some application or device, or demonstrate a physics law or principle, only using items that can be found in an average home. The aim is that a non-scientist should understand the physics from the students' demonstration. Successful participation in the competition means that students need to have a very good understanding of the physics that they are demonstrating and be able to communicate it to the judging panel, comprising both physicists and non-scientists.

The team from Ursuline Secondary School, Thurles, Co. Tipperary won with their presentation "Submarines sink or swim" and receive digital cameras and €800 towards laboratory equipment for their schools. The runners-up, from Our Lady's and St Patrick's College from Knock in Belfast, demonstrated "Moments in life" and received MP3 players and €400 for equipment.



The winning team from Ursuline Secondary School, Thurles, Co. Tipperary, with their presentation "Submarines sink or swim". The team members are Sarah Connellan, Carmel Lennon and Claire Hassett, all 1st year leaving certificate students. Their teacher is Patricia Dwan.



The runner-up team from Our Lady's and St Patrick's College from Knock in Belfast with their demonstration "Moments in life". The team members from left to right: Gemma Mullan, Ciaran Rice and Luke Gavin. Their teacher is Denise Anne Kelly.

The 2005 Leaving Certificate award

The 2005 Leaving Certificate Medal for best performance in physics examinations was presented by Prof. Martin Henry (co-chair, Institute of Physics in Ireland) to Martha O'Connor from Coachford Community College, Co. Cork.

The award was presented at the Tyndall Lecture on 27 January in the RDS, Dublin. Martha is now studying veterinary science at the University College Dublin.



Martha O'Connor receiving her medal from Prof. Martin Henry.

Busy times for ISTA

In recent months the Irish Science Teacher's Association (ISTA) has organized a number of events with support from the Institute of Physics in Ireland.

A "Science Oddity" poster competition was organized by the ISTA Dublin Branch during Science Week in November 2005. The winning poster was "Creation of Earth" by Heseeb Khawar, a first-year student from Castleknock College – he and his teacher each won an MP3 player.

A Junior Cert Science Quiz was organized by the ISTA Dublin Branch on 15 March. The winning team was from Wesley College.

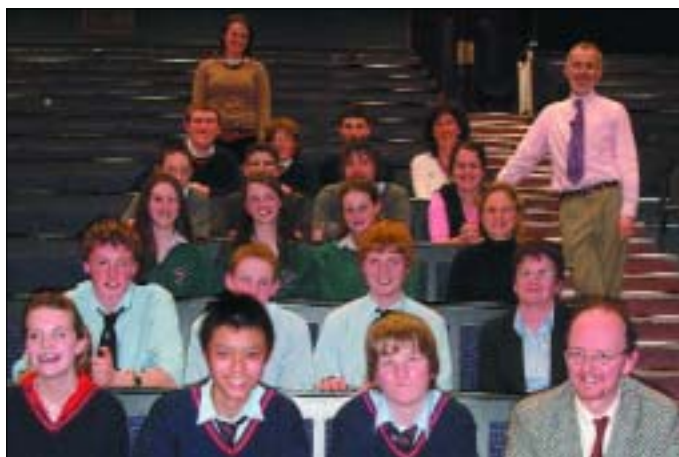
"Science in Action" was the title of the Irish Science Teacher's Association annual conference, which was held on 24–26 March in Athlone Institute of Technology. Prof. Marie Cassidy, the state pathologist, opened the meeting on the Friday evening with a lively and entertaining lecture about the science of forensic pathology and the large team of specialists who are now involved in crime scene investigations. Several times she threw her hands up into the air, announcing in her Scottish accent, "I don't know" – illustrating the difficulties inherent in accurate forensics. The time of death could be presented as, for example, 2.15 p.m. – and here she pauses a few moments before adding, "... plus or minus 12 hours!"

Up to four or five parallel sessions were on at many times throughout the weekend making choice difficult. Hands on demonstrations and lectures were included in several sessions with the Science on Stage team's fantastic, easy-to-reproduce demonstrations drawing a crowd of at least 50 teachers. Further talks included "Magnets show – using neodymium magnets" by David Feathonby; "Think differently" by Paul McCrory; "the IOP teacher network" by Siobhan Crowe and Vida Given; and "Promoting problem-solving skills" by Gerard Hughes from Sentinus in Northern Ireland.

Alison Hackett Institute representative



The winning poster "Creation of Earth" by Heseeb Khawar from Castleknock College, from the Science Oddity poster competition.



The top teams and their teachers at the Junior Cert Science Quiz in March. First to fifth place (front to back): Wesley College, St Michael's College, Loreto Abbey Dalkey, St Aidan's CBS and Stratford College.



Siobhan Crowe and Vida Given demonstrating experiments from Physics on Stage 3 to teachers at the ISTA annual conference.

Physics in Ireland is being promoted

The Institute of Physics in Ireland has recently taken on the role of representing Ireland within a number of international bodies – the International Union of Pure and Applied Physics (IUPAP); the European Physical Society (EPS); and the International Commission on Optics (ICO).

Until January 2006, the Royal Irish Academy (RIA) held the Irish membership of these organizations.

The RIA is a body comprising of elected members, who have attained distinction in the arts and sciences.

The Institute of Physics in Ireland has a wide-ranging and multidisciplinary membership of over 1700 people active in physics in Ireland.

Following recent restructuring of the RIA's activities, including a rationalization of the National Committee system, discussions arose between the RIA and the Institute of Physics and it was agreed that representation of Irish physics would be more naturally served by the Institute of Physics in Ireland, as it is seen to be the professional body most representative of the bulk of Irish physicists.

A member of the Institute will participate in a number of meetings within the governing bodies of IUPAP, EPS and ICO. Sheila Gilheany, the Institute of Physics in Ireland's policy officer, attended the annual EPS Council meeting in Mulhouse, France on 24–25 March 2005.

The precarious position of the numbers of students taking physics and the funding of research in physics are two of the key concerns of the Institute. On joining the international bodies the Irish branch hopes to draw on the experience and knowledge of the other countries to address these, as well as highlighting examples of success and good practice in Ireland.

Physicists flood to Bundoran to

With waves crashing onto the beach, clouds rolling over the cliffs of Sligo and Leitrim, and Benbulbin brooding on the horizon, 91 physicists gathered in the Great Northern Hotel in Bundoran, Co. Donegal to hear about “Physics education, a new wave”. This was the 35th Spring Weekend Meeting of the Institute of Physics in Ireland, held 31 March–2 April, and the second time the meeting was held in the Great Northern Hotel (the first time was in 1993).

The first session on Saturday morning focused on activity-based learning. Using simple electric circuits as an example, Paul van Kampen (Dublin City University) discussed how students may learn by guided enquiry through a process of observation, inference and hypothesis. Derek Raine (University of Leicester, UK) discussed a programme of problem-based learning (www.le.ac.uk/leap/) that integrates laboratory practical work, computing and theory. Sveinn Bjarman (Uppsala University, Sweden) illustrated how a simple experiment with a rubber band and a thermocouple could be used to teach the principles of thermodynamics.

The second session was dedicated to enlivening physics in schools. On behalf of Niamh Morris (Royal Irish Academy), Alison Hackett presented two short animated videos for 8–11-year-olds, produced by the Royal Irish Academy, and featuring cartoon character “Schrödinger’s Cat” (complete with Mullingar accent). Marion Palmer (Institute of Art, Design and Technology, Dun Laoghaire) discussed SESE: Science, a programme to introduce science into the curriculum for primary schools (see www.primaryscience.ie). Bob Kibble (University of Edinburgh) discussed the SPT 11–14 project launched by the Institute (see <http://teaching.physics.iop.org/>) to offer support for non-specialist teachers in secondary schools. Eilish McLoughlin (Dublin City University) concluded the session by taking all delegates

out to a display of demonstrations collected by the Irish delegation to Science on Stage (see <http://ireland.iop.org/sos/>).

The third session, held on Sunday morning, featured Gerard O’Connor (National Centre for Laser Applications, NUI Galway) discussing the role of the NCLA as a national resource in laser-based manufacturing for industry in Ireland. Peter Mitchell (University College Dublin) presented the results of a survey directed at school principals and science teachers to identify the factors contributing to the decline in the take-up of physics at second level in Ireland. Niall Smith (Cork Institute of Technology) provided the latest update on the Blackrock Telescope as a centre for science outreach to schools and the public, and collaboration with other robotic telescopes in Greece and South Africa (see <http://physics.cit.ie/blackrock/>). The session was closed with a brief forum discussion.

The meeting was well attended by postgraduate students. A total of 21 posters were presented and the students themselves were asked to identify the best six posters, which were then adjudicated by Dr Robert Kirby-Harris (chief executive of the Institute of Physics), Cathal Flynn (Dublin Institute of Technology) and Lorraine Hanlon (University College Dublin). The first prize went to Orla McGoughey (Dublin City University) for “Development of a multi-analyte integrated optical sensor platform for indoor air-quality monitoring”. Second prize went to Robert Lynch (University of Limerick) for “Crystal orientation dependence of nanoporous layer growth in indium phosphide”. The third prize was awarded to Pavani Kotakonda (Dublin Institute of Technology) for “Electrically switchable liquid-crystal gratings using surface relief effect in acrylamide based photopolymer”.

The Institute of Physics’ headquarters were well represented by Dr Kirby-Harris, John Brindley (director of membership and services), Sean Fox (director of finance), Sarah Connolly (member support



Orla McGoughey (Dublin City University) receives the first prize in the poster competition from Dr Robert Kirby-Harris (chief executive of the Institute of Physics).



Eilish McLoughlin receives the Young Physicist of the Year Award from Dr Robert Kirby-Harris.

officer) and Vishanti Lall (career development). Eilish McLoughlin was presented with the Young Physicist of the Year Award by Dr Kirby-Harris at the dinner. He also presented the prizes to the students at the dinner, provided an overview about the Institute’s Strategic Plan 2006–2011 at the AGM, and got stuck in the bog with the other hikers in an attempt to walk along the edge of the Cliffs of Magho on Saturday afternoon.

As always there were plenty of opportunities to socialize and interact. Many attended the pub quiz on Friday evening, which was organized by John White.

Teams had to answer questions such as:

- In which direction do you go if you travel through the Panama Canal from the Atlantic Ocean to the Pacific Ocean? Answer: east.
- Who was the only person to win two undivided Nobel prizes (chemistry in 1954 and the Peace prize in 1962)? Answer: Linus Pauling.
- Who wrote the 1944 essay *What is Life* which presents a physicist’s view of the molecular world of living organisms? Answer: Erwin Schrödinger.
- What is a clepsydra? Answer: a water clock (literally water thief).

to hear about physics education



Left to right: Dr Sheila Gilheany, Prof. Martin Henry and Dr Robert Kirby-Harris enjoying themselves at the conference dinner.



Clockwise from empty chair: Eric Finch, Sean Fox, Jean Finch, Brian Manley, Mrs Manley, John White, Sarah Connolly, Tony Scott and John Brindley.



Hikers on the Cliffs of Magho overlooking Lower Lough Erne.



The "Sczilander" team celebrates after winning the pub quiz.

The first prize was won by "Sczilander" (Gerry O'Sullivan, Sveinn and Eva Bjarman, Lorraine Hanlon and Paul van Kampen). Second prize went to "No. 11 Bus" (named after the bus service between UCD and DCU).

Saturday afternoon was devoted to leisure activities. A few people played a round of golf and the golf trophy was won by Maurice Girvin from Wallace High School in Lisburn. A number of people watched Leinster knock out Toulouse in the Heineken Cup (European Rugby). An energetic 18 people made their way to the Lough Navar Forest and the Cliffs of

Magho, enjoying the beautiful view overlooking Lower Lough Erne with the sun peeking through the clouds. A few hardy souls climbed down the cliffs to the lakeshore and back up.

A great conference dinner was enjoyed by all, with good food provided by the hotel and traditional and classical music provided by Sligo musicians Anna Houston, Ray Coen and Deirdre Byron Smith. The evening was further enlivened by Sveinn Bjarman who whistled Scandinavian folk tunes, and Jean Finch who sang. **Peter van der Burgt** National University of Ireland, Maynooth



Maurice Girvin, Lisburn, receives the golf trophy from Martin Henry.

Astro2 wins Nexus award

Astro2, the Astronomy and Physics Society at the National University of Ireland, Maynooth (see <http://societies.nuim.ie/astro2/>), was presented with the Nexus Award for Best Student Physics Society in the UK and Ireland. The award was presented to two representatives of Astro2 – Emily Duffy, president and Eoin Butler, vice-president – at the Institute of Physics awards ceremony on 19 January in the Savoy Hotel, London.

Others in attendance included eminent physicists who received prizes for their work in areas as diverse as optoelectronics, string theory and physics education.

With this excellent excuse in hand, the society decided to extend the occasion to a three-day trip for 18 members to see the sights and wonders of London.

On the first day, they scattered to such diverse spots as the Imperial War Museum (complete with V2 rockets, atomic bombs, trenches and submarines), the London Eye and St Paul's Cathedral with its famous Whispering Gallery. The gallery is inside the dome and was so well-built by Sir Christopher Wren that a whisper uttered to the wall at one side of the gallery can be clearly heard at the opposite side. This has now been painstakingly verified by Astro2 members.

The shopping areas of Covent Garden and Camden were also well trawled through. The



Prof. Sir John Enderby, president of the Institute of Physics, with Emily Duffy, Astro2 president, and Eoin Butler, Astro2 vice-president.



18 members of Astro2 enjoying the sights of London.

remaining two days were spent visiting the Science Museum, Big Ben, the Tower of London, the Natural History Museum,

London Bridge, the British Museum, and of course a stop at Pizza Hut (for an all-you-can-eat lunch).

Obituary – Robert Blair Elliott



Robert Blair Elliott, 1924–2006. This photograph was taken in 1985, and for a long time his appearance hardly changed at all.

Bobbie Elliott, who died suddenly last January, was a lecturer and senior lecturer in physics in Trinity College for 40 years. He was appointed by E T S Walton in 1948 and initially the two worked together on building an accelerator. In fact, Bobbie first entered Trinity even earlier, as an undergraduate back in 1942.

His career also included a period away at Birmingham University, where he worked with the nuclear physicist Philip Moon.

Quiet and undemonstrative in nature, Bobbie was known by many generations of students as a meticulous and conscientious lecturer and college tutor. We ourselves knew him as a completely reliable and dependable colleague, skilful (like Walton) with his hands, who was always prepared to take his share in the running of the department.

Outside of physics he was a loyal supporter of the Zion Parish Church in Rathgar. The address given to the large congregation at his funeral showed how much he was held in respect by people from many different walks of life.

Our condolences are offered to his wife, Jean, his three sons, his brother Ian, who worked for many years at Dunsink Observatory, and the rest of Bobbie's family.

Eric Finch Trinity College Dublin

Students treated to “Our Planet – Our Future” demo

The Tyndall lecture “Our Planet – Our Future” was presented by Dr Karen Bultitude (University of the West of England, Bristol) and Dr Laura Grant (University of Liverpool) to school students throughout Ireland from 28 January– 3 February at Queens University Belfast, RDS Dublin, Waterford Institute of Technology, University College Cork, National University of Ireland Galway and Institute of Technology Carlow.



Laura Grant giving her tornado demonstration in Dublin.

Laura Grant gave a demonstration on a tornado at the Tyndall lecture in the RDS in Dublin on 27 January.

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Obituary – Dónal Flavin

The death of the noted Irish physicist, Dónal Flavin, occurred on 9 November 2005. A native of Inch, Co. Cork, Dónal spent most of his academic career at Waterford Institute of Technology (WIT). His untimely demise represents a great loss to his colleagues and students at WIT.

Dónal graduated from UCC in 1973 with a BSc (Hons) in experimental physics and joined Waterford Regional Technical College as a physics lecturer a year later. From his earliest time there, he threw himself into the teaching of his beloved subject, becoming an inspirational lecturer to students and colleagues. Dónal also became actively involved with the Institute of Physics, making considerable contributions to the advancement of physics in Ireland and organizing the popular Tyndall lectures at WIT.

Dónal was one of the earliest researchers in the RTC sector, specializing in the field of optical interferometry. He completed an MSc in laser physics at Heriot-Watt University (Edinburgh) in 1992 and subsequently established the Optics Research Group at WIT. This research group soon attracted significant research funding, earning national and international acclaim and establishing ongoing collaborations with related groups at Heriot-Watt University, Aston University (Birmingham) and the National Institute for Standards and Technology (Boulder, Colorado).

Dónal's research at Heriot-Watt led to a lifelong interest in interferometric optical fibre sensors. By 1992, such devices were highly developed, notably as hydrophones, but with many other applications such as in the measurement of temperature or strain. The basic transduction mechanism is the change in optical path length with the applied stimulus, usually measured by means of laser interferometry. Dónal had the insight to realize that much richer information was available by interrogating the fibre with a broad-band optical source. He contributed greatly in developing dispersive Fourier

transform spectroscopy specifically for characterizing optical fibres, to measure not just optical phase (and hence path length) but also its dispersion and the higher-order derivatives of phase with respect to optical frequency. He demonstrated, for example, that different stimuli, such as temperature and strain, could be separately identified by their effect on phase and dispersion. His techniques allowed high-resolution measurement using samples very much shorter than with conventional methods. Thus, he extended his ideas to the characterization of other optical materials, with strikingly good effect in the cases of in-fibre Bragg gratings and micro-structured "photonic crystal" fibres (PCFs).

Dónal was a highly respected figure on the international optical fibre scene, especially well known for his regular contributions to the International Conference on Optical Fibre Sensors. His last contribution was a paper presented at the International Conference on Optical Fibre Sensors in Bruges in Belgium in May 2005, demonstrating how the unusual and designable dispersion characteristics of PCFs give them unique advantages in sensor applications.

Dónal served as committee member of the Institute of Physics in Ireland in 1980–1983 and 1998–1999.

In the last year of his life, Dónal was delighted to witness the first intake of students onto the newly established BSc in physics with computing at WIT. Taken in conjunction with his outstanding research achievements, this initiative signalled the culmination of his career.

Dónal's death, after a short illness, was untimely and unexpected. His demise represents a profound loss to the physics community, to his beloved wife Carmelita and daughter Julie, and all of the Flavin family.

Claire Keary Waterford Institute of Technology
Prof. Julian Jones Heriot-Watt University

London is venue for WiPG event



Back to front, left to right: Kate Arthurs, Natasha Ivers, Alice Mooney, Sinead Connolly and Eilish Byrne from NUI Maynooth attending the women's conference held in London at the Institute of Physics.

On Wednesday 8 March, International Women's Day, the Women in Physics Group (WiPG) held a conference at the Institute of Physics' headquarters in London. This event was aimed at female students, to promote women in physics and to provide career and educational information and advice.

Five first-year physics students, Eilish Byrne, Sinead Connolly, Natasha Ivers, Alice Mooney and Kate Arthurs from the National University of Ireland in Maynooth, attended the event, which provided an opportunity to meet with other physicists and discuss the career options available to them. The conference was also attended by students from all over the UK, from first year to PhD level.

The promotion of women in physics is a particularly relevant issue, as women are traditionally under-represented in the profession. In 2002, the first international conference was held on this issue in Paris, and 65 countries were represented. A second conference was held in Rio de Janeiro in 2005.

Currently, the Institute of Physics has approximately

35 000 members, including 7700 students, and just 16% of members are women. However, while women represent 25% of the student membership, only 3% of fellows are female. Events such as this help to promote awareness of the issues facing women in physics today.

WiPG chair, Anne Marks, coordinated the meeting, and a wide range of speakers included individuals from a variety of professional and academic backgrounds. Among these speakers were Dr Katharine Hollinshead, diversity programme officer for the Institute of Physics, Dr Joanne Baker from *Science Magazine* and Dr Dimitra Darambara, head of research and development in the Joint Department of Physics at Royal Marsden Foundation Trust and Institute of Cancer Research. Others included Dr Helen Brindley from Imperial College London, who discussed the pros and cons of an academic career and the skills required. Prof. Gillian Gehring from the University of Sheffield shared her experience of becoming the second female professor of physics in Britain and Ireland.

Physics on Stage 3 is launched

On 12 December 2005, Mary Hanafin, Minister for Education and Science, launched the *Physics on Stage 3* booklet at the Blackrock Education Centre.

The students beside her are Graham Kelly from Sandford Park Secondary School and Leah McConnell from St Dominic's High School, Sutton, Dublin.

The demonstration shows flames formed by standing waves in a tube of gas (see "The flame tube" from the Waves and Sound chapter). The booklet contains demonstrations and teaching ideas collected by the Irish Delegation to Science on Stage 3. Chapters of the booklet can be downloaded from <http://ireland.iop.org/sos/>.



Mary Hanafin is pictured here with Graham Kelly and Leah McConnell demonstrating "The flame tube".

Solar eclipse in Turkey



This spectacular picture was captured by Niall McKeith in Turkey.

Pictured here is the Diamond Ring and a single Baily's Bead appearing seconds after totality during the solar eclipse on 29 March 2006 in Turkey.

The planet Mercury is visible

in the lower right. The photo was taken by Niall McKeith (National University of Ireland, Maynooth) in Antalya, Turkey, using a Fuji S5500 digital camera with $\times 10$ optical zoom.

Earnshaw prizewinner



Kenneth Doherty (centre) receives his prize from Dr Pdraig Dunne (left).

The 2004 Earnshaw Prize was presented to Kenneth Doherty (centre) who carried out his project entitled "Dipole vortex in a density stratified fluid" at University College Dublin. The

presentation was made by Dr Pdraig Dunne (left) at the annual information session for prospective postgraduate students held in University College Dublin on 8 March.

The deadline for your contributions to the October 2006 issue of this newsletter is:

Friday 1 September 2006

Please e-mail your materials to Peter.vanderBurgt@nuim.ie