

Institute of Physics in Ireland | March 2014

Annual report

Activities and outreach • Education • Policy





Reaching out

From martial arts to cosmology, the Institute of Physics (IOP) found ways to inform, educate and entertain students, teachers, policymakers and the wider public about the role of physics in every aspect of life, in campaigns stretching from Cork to Derry. The Institute supported a number of highly innovative activities such as the Nanotechnology Zone of I'm a Scientist, Get Me Out of Here – an X Factor-style competition for scientists where students are the judges, and the Dart of Physics poster campaign on public transport. The IOPI stand at the BT Young Scientist explored particle physics with a game of proton football in the CERN Interactive Tunnel. Awareness of careers in physics was a key issue, with IOP working at events throughout Ireland distributing thousands of copies of its publication 28 Days, 28 Physicists.

Educating

The five teacher network co-ordinators in IOPI have provided tremendous support for hundreds of teachers throughout the island with many workshops, ranging from the Virtual Physics Laboratory to Rockets, events and newsletters produced and exam papers reviewed. Much of this work has been done in conjunction with the Professional Development Service for Teachers and with the Northern Ireland Department of Education.

Almost 90 physics teachers converged on the banks of the river Lee at University College Cork for the 13th annual Frontiers Conference on 28 September 2013. Keynote speakers included Prof. Malcolm Longair, former Astronomer Royal of Scotland, who spoke on “Cosmology its tortuous history, glorious present and bright future”. Rory Fitzpatrick presented an outline of various activities at the National Space Centre – past, present and planned – focusing mainly on Earth observation and space. National Space Centre is a private company supported by Enterprise Ireland. It was set up in 2010 to redevelop Elfordstown Earthstation in Cork and to re-launch Elfordstown as a carrier-grade, commercial teleport and centre of excellence for space research.

Stephanie O'Neill from the European Space Education Resource Office (ESERO) Ireland spoke about the highly useful classroom resources available, while Eamonn Connolly introduced the CanSat competition – CanSat is an ESA project aimed at second-level students from transition year upwards and has students building a simulation of a real satellite, integrated within the volume and shape of a regular soft-drink can. The challenge for the students is to fit all of the major subsystems found in a satellite, such as power and communications, into a regular soda can. Continuing the space theme, Paul Callanan from UCC talked about the inspirational nature of astronomy and its role in the classroom in attracting students to science in general.

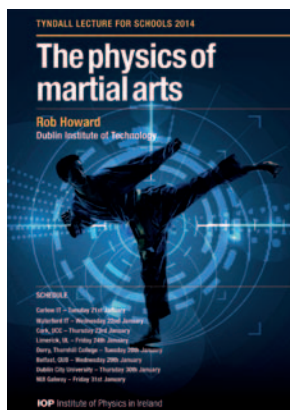
From the vastness of space the conference moved on to a completely different scale with Andreas Ruschhaupt, also from UCC, discussing the control of quantum systems and Dr Simon Elliott from the Tyndall National Institute looking at materials modelling for devices – at the interface between physics, chemistry and electronics.

Celebrating

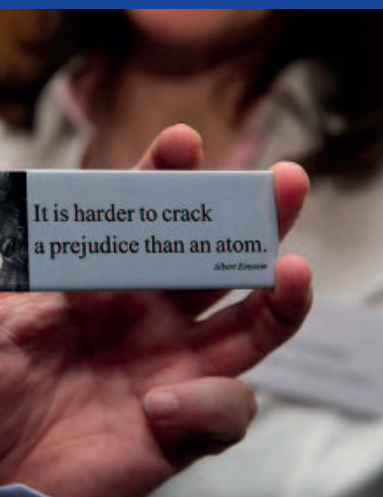
Excellence in physics at all levels was highlighted through the Institute's medals and awards.

The top physics award at BTYS, which is sponsored by IOP, was won by two students from Wellington College, Belfast – Ricki Duffield and Peter Duffin – for their project on the detection and impact of solar flares in the upper atmosphere.

Silver medals for top performances in physics in end of school exams were awarded. Minister Sean Sherlock presented the top physics leaving certificate student, Gleb Dzhus, at the IOP Ireland Christmas Reception. Gleb, a former student of the Christian Brothers School, Sidney Hill, Cork, is now studying maths and science at UCC. In Northern Ireland the award for the top A-level physics student went to Daniel O'Reilly, of Lumen Christi College in Derry, who is now taking chemistry at Imperial College London.



Tyndall schools lecture – The Physics of Martial Arts.



Daniel Kirby of DCU won the Rosse Medal for communication of postgraduate research at the annual Spring Meeting and Aaron Reid of QUB won the Earnshaw Award for best final-year undergraduate project, while Sian Joyce, of Coláiste an Spioraid Naoimh in Cork, was named Irish Physics Teacher of the Year at IOP's annual awards ceremony in London. On a lighter note, UCC won the annual intervarsity physics quiz.

energy options and information sessions on food allergies. In a first for IOP Ireland, the Institute exhibited at the inaugural conference of the newly established NI21 political party.

The issue of women and girls in physics was a recurring theme throughout the year. Three physics departments engaged strongly with IOP's Juno programme, with NUI Galway and TCD achieving Juno Practitioner status and GMIT coming on board as a Supporter. The Juno initiative, running since 2007, aims to redress the long-standing issue of the under-representation of women at the highest levels of physics academia in Ireland and the UK.

They join a growing list of 44 other university physics departments that have expressed commitment to Project Juno. At school level, concern was expressed by the Institute on the significant drop of 18% in girls taking physics at A-level in Northern Ireland in 2013, while at Leaving Certificate level girls made up only a quarter of the physics cohort.

IOP in Ireland continued to work closely with organisations such as the Royal Irish Academy, Engineers Ireland, the Institution of Engineering and Technology, Royal Dublin Society and the Royal Society of Chemistry to highlight many issues of common interest particularly in relation to the uptake of science at school level and the funding of research.

Images (left to right): Minister Sean Sherlock at the IOPI Christmas Reception; Gleb Dzhuz, top physics leaving certificate student in 2013; IOPI exhibited at newly formed NI 21 part conference; IOP volunteers at Derry's Culture Tech Junior running the CERN Mini Expo; Paul Hardaker making a presentation to Tony Scott in recognition of 50 years of IOPI and the 50 years of the Young Scientist Exhibition.

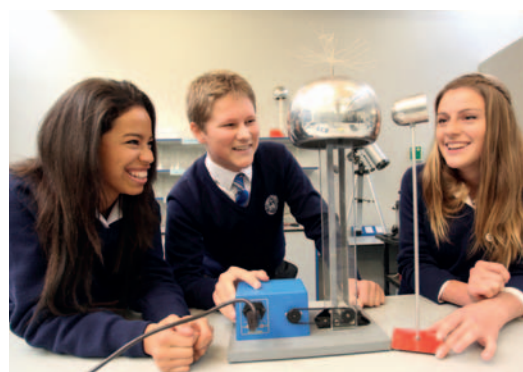


Daniel Kirby being presented with the Rosse Medal by IOP President Prof. Sir Peter Knight.

Influencing

The Institute contributed to consultations on many issues affecting physics. In Northern Ireland these included responses to the draft Innovation Strategy, the European Regional Development Fund proposals and the CCEA consultation on the review of GCSE and GCE qualifications, while south of the border the Institute responded to the NCCA review of Junior Cycle Science and made repeated representations on the issue of the funding of fundamental research.

In Northern Ireland, the IOPI has played an active role in an All Party Group on Science at Stormont. This grouping of Assembly Members and professional science bodies aims to draw attention to issues around science and to provide access to speakers and relevant research. It has organised a series of events such as Science at Stormont, debates on topical issues such as the security of the Northern Ireland electricity supply, renewable



IOP working to support and increase numbers of women in physics.

Nearly a quarter of second-level schools in Ireland do not offer physics at Leaving Certificate level

Rises were seen in school students taking physics but much more is needed, particularly with girls

The IOPI has had a number of meetings with politicians, ministers and senior civil servants on both sides of the Irish border to raise concerns and to offer help in implementing possible solutions, particularly in relation to the uptake of physics at school.

Looking forward 50 years

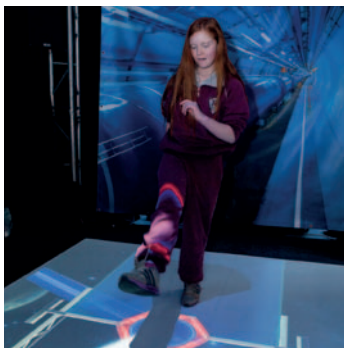
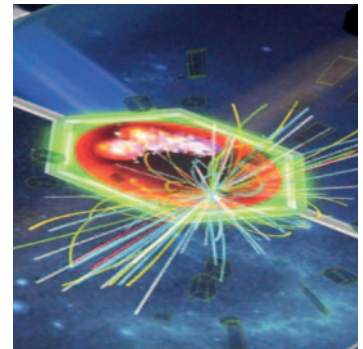
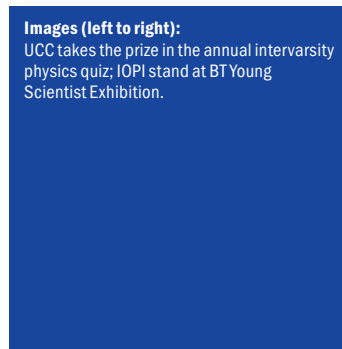
2014 sees IOP Ireland's 50th anniversary, which will be celebrated with an eclectic mix of events and activities across the island. Since 1964 the Institute has worked with schools, colleges, universities,

businesses, governments and the general public to support physicists and promote physics at all levels. From the annual events such as the Tyndall Schools Lecture and the Spring Meeting, which have run for many years, to more recent innovations such as entrepreneur workshops and career speed dating for physics postgraduate students, the Institute has found many ways to engage with its members. Through its strong community of volunteers it has brought an appreciation of physics to all parts of Ireland and very much looks forward to continuing and strengthening that tradition in the decades ahead.

Images (left to right):
IOPI careers information stand; CERN interactive tunnel.



Images (left to right):
UCC takes the prize in the annual intervarsity physics quiz; IOPI stand at BT Young Scientist Exhibition.



Images (left to right):
Proton football at IOPI stand at BT Young Scientist; physics buskers at large in Dublin.

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