Annual report

Activities and outreach • Education • Policy
IOP Ireland – 50 years looking forward

In our 50th-anniversary year, the Institute of Physics in Ireland (IOPI) found innovative ways to inform, educate and entertain students, teachers, policy makers and the wider public about the role of physics in every aspect of life, in campaigns stretching from Castlebar to Dublin and Cork to Derry.

Reaching out

Working with a range of organisations, the Institute supported a number of inventive activities such as the Dart of Physics poster campaign on public transport, the Pint of Science outreach events in Dublin pubs, SciFest, Schools Formula One Racing, the Walton School Physics Club, Physics in the Field at the Balmoral Agricultural Show, Radar Football at the Young Social Innovators Showcase, and the Robert Boyle Summer School in Lismore, to name a few.

2015 is the United Nations-designated International Year of Light. So the IOPI stand at the BT Young Scientist exhibition had a range of exhibits celebrating the power and beauty of light. Awareness of industry links in this area and careers in physics were key issues, with IOPI working at events throughout Ireland distributing thousands of copies of its publication, 28 Days, 28 Physicists, at this event and at other careers fairs in Galway, Monaghan, Roscommon and Belfast.

The Northern Ireland launch of the Year of Light took place at the opening of the Incredible Power of Light exhibition at the Ulster Museum. This laser exhibition was part of Northern Ireland’s first ever Science Festival. IOPI’s Education and Outreach Advisor, Liz Conlon, was the chair of the Festival, which had more than 130 events across 11 days in February, with around 30,000 participants. The festival featured an eclectic mix of art, drama, comedy, debates and history, all infused with science. IOPI was closely involved with events as diverse as Renaissance Science, photography workshops and talks on the Higgs boson and cancer treatment. A particular highlight of the festival was the naming of a street in Belfast’s Titanic Quarter after Northern Ireland-born John Stuart Bell’s famous theorem in quantum mechanics, which explains what Einstein termed “spooky action at a distance”.

Educating

The IOPI’s five teacher-network co-ordinators have provided tremendous support for hundreds of teachers throughout the island, with many workshops – including What Comes Next, Physics in Action, Virtual Lab and the Rosetta Mission – 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.

More than 100 physics teachers converged on DCU in September 2014 for the 14th Annual Frontiers Conference, which was launched by the Minister of State for Skills, Research and Innovation, Damien English. The programme included talks from renowned international speakers, workshops and demos. In an entertaining talk, keynote speaker Dr Hugh Hunt of Cambridge University explored some of the puzzling questions of spin, such as why top-spin is so effective in tennis, why a falling cat always lands on its feet, and how the Hubble Space Telescope can turn around in space. Canadian presenter Johanne Patry looked at how teachers can construct inspiring lessons using mythical hero-scientists like Merlin. Other areas explored included using money to illustrate physics principles and the use of light in the inquiry based classroom.

The teacher-network co-ordinators also contributed physics demonstrations to many other events around the country, including the Mallow Science Festival, and the Festival of Curiosity in Dublin and Culture Tech in Derry. They also worked closely with the Irish Science Teachers Association and the Association for Science Education to provide support, particularly for newly qualified and non-specialist physics teachers.

This year’s Tyndall Lecture Tour was an entertaining demonstration talk “Technology Rocks”, with well-known science presenter Sue McGrath. Hundreds of school students across Ireland attended the talks, given in eight venues across Ireland.

The annual Spring Meeting was held in Dun Laoghaire and was the centrepiece of IOPI’s celebrations of its 50th anniversary. The event highlighted the excellence of physics research across Ireland. Throughout the year the Institute also organised its annual speaker programme, with more than a dozen high-level talks in physics departments throughout Ireland.
Awards
Excellence in physics at all levels was highlighted through the Institute’s medals and awards.

The top physics award at the 2015 BTYS, which is sponsored by IOP, was won by two students, Shauna Murphy and Caoimhe Cronin from St Mary’s Secondary School in Mallow, for their project on radon emanation in Mallow.

Cork students were to the fore again with the awards for the top 2014 Leaving Certificate physics. Four students shared the award – three from Cork – Ciaran Hurley, St Francis Capuchin College, Cormac O’Mahoney, CBS Sydney Hill, Kevin Holland, Coláiste an Sprioraid Naoimh, and one, Simon Bluett, from CBS Kilkenny. In Northern Ireland the award for the top A-level physics student went to Matthew Kingston of Belfast High School. Minister Damien English presented the medals at the IOPI Christmas reception.

Jennifer Gaughran of Dublin City University won the Rosse Medal for communication of postgraduate research at the annual Spring Meeting, and Eoin Murray of University College Cork won the Earnshaw Award for the best final-year undergraduate project, while Ken Orr of Wellington College, Belfast, was named Irish Physics Teacher of the Year at IOP’s Annual Award Ceremony in London.

Influencing
The Institute contributed to consultations on many issues affecting physics, including the draft Northern Ireland budget for 2015–2016, the production of detailed cases for Irish membership of CERN and the European Southern Observatory, and the Irish government’s strategy on science, technology and innovation.

In Northern Ireland, IOPI has played an active role in the All Party Group on Science and Technology 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, and debates on topical issues such as energy storage.

IOPI sponsored a table at the Northern Ireland Invent awards in November. This event provided an opportunity to highlight the contribution made by physics-based business to the local economy.

The issue of women and girls in physics was a recurring theme throughout the year. Ireland was represented at the International Women in Physics Conference in Toronto by IOPI members Eilish McLoughlin, DCU, and Sandra Fee of Ardee Community School. IOPI also supported a workshop on Unconscious Bias at UCD, while Queen’s University Belfast has achieved Champion Status this year with the IOP’s Juno programme, which promotes good practice in third-level physics departments in relation to both women and men.

One particular piece of good news was that the number of students taking physics at Leaving Certificate level increased by 11% in 2014. The figures are an indication that the increased demand at third level for science and engineering during the past couple of years is filtering down into school level and reverses a long-standing decline of many years.

IOPI continued to work closely with organisations such as the Royal Irish Academy, Engineers Ireland, the Institution of Engineering and Technology, the Irish Science Teachers Association, the 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. IOPI has had a number of meetings with politicians, ministers and senior civil servants on both sides of the Irish border, to both raise concerns and offer help in implementing possible solutions.

As noted in the IOPI publication 50 Years Looking Forward, the Institute’s greatest asset is its membership. Many people have, in one form or another, contributed to the activities of the branch during the past 50 years, and have made IOPI the vibrant professional body that it now is for all physicists in Ireland. IOPI is well placed to continue and expand its range of activities during the next 50 years.

Images (left to right):
Jennifer Gaughran, DCU, being presented with the Rosse Medal by Paul Hardaker, IOP Chief Executive; Simon Bluett, Minister Damien English, Matthew Kingston and Kevin Holland with the top Leaving Certificate and A-level physics awards; Light painting to launch the 2015 International Year of Light; Tony Scott and David Murnaghan cut the IOPI 50th-anniversary cake; Shauna Murphy and Caoimhe Cronin, winners of the BT Young Scientist Physics Award, with Paul Hardaker, IOP Chief Executive.

The IOP Ireland Chair, Dr Peter van der Burgt, at the launch of the 50th-anniversary commemorative booklet.
Images (clockwise): The Incredible Power of Light exhibition – STFC/IOP at the Ulster Museum; The launch of the NI Science Festival with Director Chris McCreery and Chair Liz Conlon; Minister Damien English opening the Frontiers of Physics teachers' conference; Spring Meeting participants; Northern Ireland’s first Science Festival; IOP members Eric Finch and Matthias Mobius at the Spring Meeting; Hugh Hunt demonstrating angular velocity at the Frontiers of Physics teachers conference.

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