Institute of Physics in Ireland 2015–2016

Inform, educate and entertain — throughout the year, the Institute of Physics in Ireland (IPI) found innovative ways to reach students, teachers, policy makers and the wider public, communicating about the role of physics in Ireland’s culture, economy and research.

Reaching out

Working with a range of organisations, the Institute supported a number of highly inventive activities such as the City of Physics poster campaign on public transport, the Pint of Science outreach events in Dublin pubs, SciFest, Schools Formula 1 Competition, the Walton School Physics Club, Physics Busking at the National Ploughing Championships, Physics of Sport at W5 in Belfast, and the Robert Boyle Summer School in Lismore, to name but a few. In 2015, the IPI organised or supported more than 110 events with a conservative reach of 115,000 people.

The IOPSI stand at the BT Young Scientist Exhibition concluded IOPSI’s celebration of the United Nations designated 2015 International Year of Light with a range of exhibits celebrating the power and beauty of light. Awareness of industry links in this area and careers in physics was a key issue, with the IOP 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 IOPSI was closely involved in the second annual Northern Ireland Science Festival, with more than 100 events running across 10 days in February 2016. The festival featured an eclectic mix of art, drama, comedy and debates and history, all infused with science. The IOPSI was closely involved with events as diverse as:
- Physics comedy with Belgian science presenter Lyonie Schiere
- “How do you solve a problem like nuclear power?” by Ian Chapman exploring the challenges in nuclear fusion
- Physics busking in St George’s Market
- TenX9 — personal stories from local scientists
- A workshop on careers that lead on from physics, featuring games development company Havoc and specialist technical recruitment agency MCS.

A particular highlight of the festival was Professor Mike Cruch, University of Birmingham, speaking at the IOPSI Spring Meeting, which had the theme “100 years of Einstein’s general relativity”, a week after the publication of the first confirmed observation of gravitational waves.

During the year, the IOPSI commenced its outreach equipment grant programme for third level physics departments. This initiative was made possible by a generous donation to the Institute’s Walton Fund. To date, grants have been provided to Dublin City University, NUI Galway (NUIG) and Queen’s University Belfast (QUB) for equipment ranging from quantum levitating superconductors to interactive optic domes. The equipment is for use at college open days and other outreach events and festivals. In February, the QUB kit had its first outing at the NI Science Festival at an exhibition in the Ulster Museum, attracting thousands of visitors. Other applications are in the pipeline, and it is anticipated that the fund will make a significant impact on physics outreach in Ireland.

Educating

The five teacher network co-ordinators in the IOPSI have provided tremendous support for hundreds of teachers, with many workshops including What Comes Next, Physics in Action, Shocked and Stunned, Virtual Lab and Lights, Camera Images, events and newsletters produced, and exam papers reviewed. Much of this work has been done in conjunction with the Professional Development Service for Teachers in the Republic of Ireland and with the Northern Ireland Department of Education.

Around 100 physics teachers congregated on NUIG in September 2015 for the 15th annual Frontiers Conference. The programme included talks, workshops and demos. In a highly intriguing talk, keynote speaker, eminent particle physicist and author, Professor Frank Close, University of Oxford, talked about Cold War spies, while colleagues from NUIG gave a series of showcase talks on research in Galway.

The teacher-network co-ordinators also contributed physics demonstrations to many other events around the country, including the Mallow Science Festival, 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 teachers and non-specialist physics teachers.

This year’s Tyndall Lecture tour was a highly entertaining demonstration talk — “Defying gravity” — from well-known science presenter Laura Thomas. Around 2,500 school students attended the talks given in eight venues across Ireland.

The IOPSI’s academic lecture programme included speakers on quantum interferometry, the cosmic microwave background and new developments in nanotechnology, and the Institute hosted a joint conference with Seagate Technology in Derry on magnetism, thin-film deposition and plasma etching.

Awards

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

The top physics award at the 2016 BT Young Scientist Exhibition, which is sponsored by the IOP, was won by two students, Aleksander Kozina and Keshav Sapkota, from CBS Syngue Street in Dublin, for their project “Numerical algorithms for constrained motion in classical mechanics”. The students were presented with the award by the 2015 winner of the IOPSI Rosse Medal for physics communication, Aimee Stapleton of the University of Limerick. Niall O’Donnagáin, St Peter’s College, Summerhill, Wexford, and David Glynn, St Gerald’s College, Newport Road, Castlebar, Co. Mayo, were awarded the prize for the top Leaving Certificate physics paper, while Mark Ailngaham of Rainey Endowed School, Maghera, won the equivalent award for Northern Ireland A-level physics.

Niamh Kavanagh of the Tyndall Institute won the 2016 Rosse Medal for communication of postgraduate research at the annual Spring Meeting, and Cleo Harvey of Dublin City University won the Earnshaw Award for best final-year undergraduate project, while Frank Cotter, of CBS Sydney Hill, Cork, was named Irish Physics Teacher of the Year at the IOPSI’s annual award ceremony in London.

In 2015, the IOPSI introduced its school award for physics, in which schools can nominate up to two students to receive a special certificate for physics performance and whose names are included on the roll of honour on the IOPSI website.

Influencing

The Institute contributed to consultations on many issues affecting physics, including the National Skills Strategy and the Irish government’s strategy on science, technology and innovation. In the run-up to the 2016 general election, the IOPSI provided a detailed commentary on issues around physics.
In Northern Ireland, the IOPI has played an active role in the 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, and debates on topical issues such as energy storage.

One particular piece of good news was that the number of students taking physics at Leaving Certificate level increased by 4.6% in 2015. 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 to school level, and reverses a long-standing decline of many years. Overall numbers taking physics at Leaving Certificate are now 18% higher than in 2012.

The IOPI continued to work closely with organisations such as the Royal Irish Academy, Engineers Ireland, the Institution of Engineering and Technology, 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. The 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 to offer help in implementing possible solutions.

In the upcoming year, the IOPI will continue to work closely with its members, teachers, academics, government and business to promote physics and support physicists.