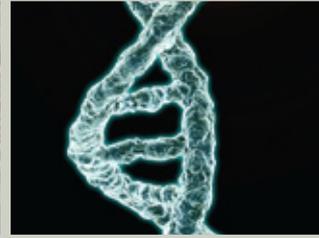
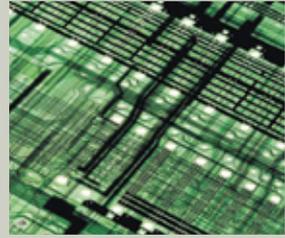
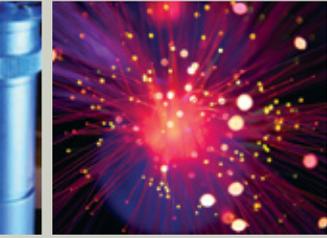


Science Foundation Ireland - *The National Foundation for Excellence in Scientific Research*



**Annual Report
and Accounts
2007**

**Research for
Ireland's Future**

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Vision

Through strategic investments in the people, ideas and partnerships essential to outstanding research in strategic areas, Science Foundation Ireland will help build in Ireland research of globally recognised excellence and nationally significant economic importance.

Mission

SFI will build and strengthen scientific and engineering research and its infrastructure in the areas of greatest strategic value to Ireland's long-term competitiveness and development.



SFI Core Values

Excellence We fund internationally recognised world class research.

Engaged We are committed to the Foundation's role in Ireland's development and to the research community.

Strategic We are visionary, plan for the long term and invest in research with consequences for the benefit of Ireland's economy and society.

Innovative We are dynamic, collaborative, creative and responsive to the ever changing needs of our stakeholders.

Integrity We inspire trust by acting fairly, objectively, honestly and transparently in the manner in which we operate and the research that we fund.

Frontiers We work at the frontiers of research. We advance knowledge, stimulate interdisciplinarity and promote linkage with industry.

“Ireland's proximity to Europe and close relationship with the US make it unusually attractive and open up the interesting possibility of interacting with companies that are moving to Dublin.”

Dr. Nigel Boston,
SFI Stokes Professorship, UCD

SFI BOARD 2007



Prof. Patrick Fottrell
Chairperson, former
President, National
University of Ireland,
Galway

Prof. Fottrell is a former Professor of Biochemistry, currently serving on Boards of several public and private organisations. He is a member and former Vice-President of the Royal Irish Academy. Prof. Fottrell obtained his B.Sc. and M.Sc. from University College Cork (UCC), his PhD from the University of Glasgow and his D.Sc. from the National University of Ireland.



Prof. Frank Gannon
Director General

Prof. Gannon was appointed Director General of SFI in July 2007. Prior to this Prof. Gannon was Executive Director of the European Molecular Biology Organisation (EMBO) and Senior Scientist at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany. Prof. Gannon is a former Director of the National Diagnostic Centre and Associate Professor in the Department of Microbiology at National University of Ireland, (NUI) Galway.

Prof. Gannon obtained a B.Sc. from the NUI, a PhD from the University of Leicester, England, was a post-doctoral fellow at the University of Madison, Wisconsin, USA, and Chargé de Recherche in INSERM at the University of Strasbourg, France. Prof. Gannon has authored over 200 research articles published in international journals. Prof. Gannon is a member of the Royal Irish Academy.



Mr. Sean Aherne
Vice President of Operations,
Boston Scientific Limited,
Tullamore

Mr. Aherne has been involved in industry for over 30 years including involvement in three start-up operations. He has held positions in both production operations and engineering with Boston Scientific, Sherwood Medical and Braun. During this time he has led technology projects ranging from facility design and build to process automation and technology transfers.



Prof. Jane Grimson
Head of the Department
of Computer Science,
Trinity College Dublin.

Prof. Jane Grimson¹ is Head of the Department of Computer Science, Trinity College Dublin (TCD) and Acting Director of Health Information in the Health Information and Quality Authority. Before her current role, Prof. Grimson was Vice Provost of TCD from 2001 to 2005, Dean of the Faculty of Engineering and Systems Sciences from 1996-1999 and Pro Dean of Research from January to August 2001. Prof. Grimson was also the first female President of the Institution of Engineers of Ireland (IEI) (1999-2000) and is a Fellow of the Royal Academy of Engineering.



Ms. Helen A. Keelan
Director, Sirikit Ltd.

Ms. Helen Keelan is a founder Director of Sirikit Ltd. which provides consultancy services in business planning and strategy.

Ms. Keelan's previous roles include 13 years with Intel Ireland, latterly as Strategic Development Manager and previously as Financial Controller both in Ireland and in the US. Prior to joining Intel she was Financial Controller of Ericsson Ireland. Ms. Keelan became a Chartered Accountant while working with KPMG.

A graduate of University College Dublin (UCD) (B.Comm), Ms. Keelan obtained an M.Sc. in Management from TCD. She is a Fellow of the Institute of Chartered Accountants in Ireland. Ms. Keelan is a Board member of the Digital Hub Development Authority, GS 1 (Global Standards 1 (Ireland) Limited) and is a Director of a number of private companies.



Mr. Peter MacDonagh
Research Consultant

Mr. Peter MacDonagh was educated at UCD and Cambridge University. In 1997 he became the special advisor to the

Minister for Education & Science where he was centrally involved in the development and implementation of policy in relation to research initiatives including the establishment of the Programme for Research in Third Level Institutions (PRTLII) and the Irish Research Council for the Humanities and Social Sciences (IRCHSS). Subsequently he was special advisor to the Taoiseach, where amongst various other areas, he had responsibility for education and research policy. He is now a consultant.



Prof. Marja Makarow
Professor of Applied Biochemistry and Molecular Biology, Vice-Rector for Research at the University of Helsinki

Marja Makarow² was Professor of Applied Biochemistry and Molecular Biology, and Vice-Rector for Research and Researcher Training of the University of Helsinki before she took up her present position. She was President of the European Molecular Biology Conference (EMBC/EMBO) since 2004 and member of the Council of the European Molecular Biology Laboratory since 1999. She served in the Research Council for Health of the Academy of Finland in 1998-2003, and Chairs the Steering Committee of its research programme of systems biology and bioinformatics since 2003. Marja Makarow is member of the Life Science panel of the EURYI programme of ESF since 2004 and Chair in 2007. She was member of the multidisciplinary assessment committee of the Canada Foundation of Innovation in 2006 and is member of the international award selection committee of the Millennium Technology Prize since 2006.



Dr. Jim Mountjoy
Former CEO Euristix Ltd.,
Deputy Chairman, SFI.

Dr. Mountjoy founded Euristix, an innovative supplier of advanced network management software solutions for the telecommunications industry. Euristix became a market leader and was acquired by Fore Systems in February 1999, which in turn was subsequently acquired by Marconi. Dr. Mountjoy is currently involved in a non-executive capacity with a number of software companies and is an advisory Board Member of a number of Venture Capital companies.



Dr. Martina Newell-McGloughlin
 Director of the Biotechnology
 Research and Education
 Program at the University of
 California (UCBREP).

Dr. Newell-McGloughlin is an internationally recognised authority on biotechnology. She directs the UCBREP, which covers all ten campuses of the University of California and the three national Laboratories; Lawrence Berkeley, Lawrence Livermore and Los Alamos. She is also Co-Director of a (US) National Institutes of Health Training Program in Biomolecular Technology, one of only three in California, the others being at UC Berkeley and Stanford University. In addition, she is an adjunct Professor of Plant Pathology. In 2003, the US Council for Biotechnology named her one of the DNA Anniversary Year Faces of Innovation and in 2005 she received the BIOLINK USA-Ireland Irish America Life Science Award.



Dr. Don Thornhill
 Chairman, National
 Competitiveness Council
 of Ireland.

Dr. Thornhill is a former senior Irish civil servant. He is a former Executive Chairman of the Higher Education Authority and a former Secretary General of the Department of Education and Science. He has been a leading figure in the development of education and research policy in Ireland – particularly in the development and operation of the Programme for Research in Third Level Institutions (PRTLII). He also held senior positions in the Departments of Finance and Foreign Affairs and in the Office of the Revenue Commissioners. He is a board member of a number of organisations in the Irish public and private sectors and is involved in a consultancy capacity with a number of organisations and companies. He is a member of the Royal Irish Academy. Dr. Thornhill obtained his B.Sc. and PhD degrees from UCD, a M.Sc (Econ) from TCD and was recently awarded an honorary doctorate in education by the National University of Ireland.



Mr. John Travers
 Economic and Business Consultant

Mr. John Travers is an Economic and Business consultant. Previously he was the founding CEO of Forfás (1993-2002) and of Science Foundation Ireland (2000-2001) during its critical start-up phase. John Travers was Chief Economic Advisor in the Department of Industry and Commerce (1988-1993). Prior to that, he held senior management positions in the Department of the Taoiseach, the Department of Finance and the Department of Local Government. Across all of these positions he has been closely involved in the process of national economic and industrial planning over a period of more than 30 years. He is currently a member of a number of Boards in both the Public and Private Sectors. He was appointed by the Government as Chairman of the National Tourism Development Authority (2002-2003) and of the Expert Group established to plot a new ten-year national strategy for Irish tourism (2003). He holds Postgraduate degrees in Town Planning, Economic Planning and in Business Administration from the Dublin Institute of Technology (DIT), the University of Pennsylvania and the National University of Ireland respectively.



Mr. Martin Shanagher
 Assistant Secretary, Science, Technology and
 Intellectual Property Division, Department of
 Enterprise, Trade and Employment

Martin Shanagher heads the division at the Department of Enterprise, Trade and Employment (D/E/TE) responsible for developing, promoting and coordinating Science, Technology, Innovation and Intellectual Property policy and programmes. He is the chair of the Interdepartmental Committee on Science, Technology and Innovation that has overall responsibility for driving and monitoring implementation of the Government's Strategy for Science, Technology and Innovation 2006-2013 and reporting to the Cabinet Sub Committee on STI. He also has responsibility for Ireland's involvement in a range of international research and technology programmes involving the European Union and the European Space Agency.

A graduate of the Institute of Public Administration, Mr. Shanagher has previously worked as Assistant Secretary in D/E/TE heading up the Corporate Services and Economic Policy Division and was a member of the Tax Strategy Group. He has previously served as Director of the Office of Science and Technology and was a member of the Interim Board of SFI during its formative years (2002/2003). He has broad experience across the Department, working on SME policy, taxation policy, corporate and strategic planning, on intellectual property and patent policy, competition and mergers policy.

MEMBERS OF COMMITTEES OF THE BOARD 2007

1 Board Sub Group on Programme Grants³

Dr. Martina Newell-McGloughlin (Chairperson), Prof. Frank Gannon, Prof. Jane Grimson, Mr. Peter MacDonagh, Dr. Eucharía Meehan (Higher Education Authority) and Prof. Marja Makarow.

2 SFI Audit Committee

Dr. Jim Mountjoy (Chairperson), Mr. Aidan Hodson (Department of Enterprise, Trade & Employment), Ms. Helen Keelan and Dr. Don Thornhill.

3 Management Development and Remuneration Committee

Prof. Patrick Fottrell (Chairperson), Mr. Sean Aherne, Mr. Martin Shanagher and Mr. John Travers.

Note:

In accordance with the process of rotational retirement set out in Section 9 (3) and (4) of the Industrial Development (Science Foundation Ireland) Act 2003, Mr. John Travers and Prof. Martina Newell-McGloughlin were chosen for retirement and were subsequently re-appointed to the Board by the Minister for Enterprise, Trade and Employment, Mr. Micheál Martin T.D. with effect from 25 July 2007.

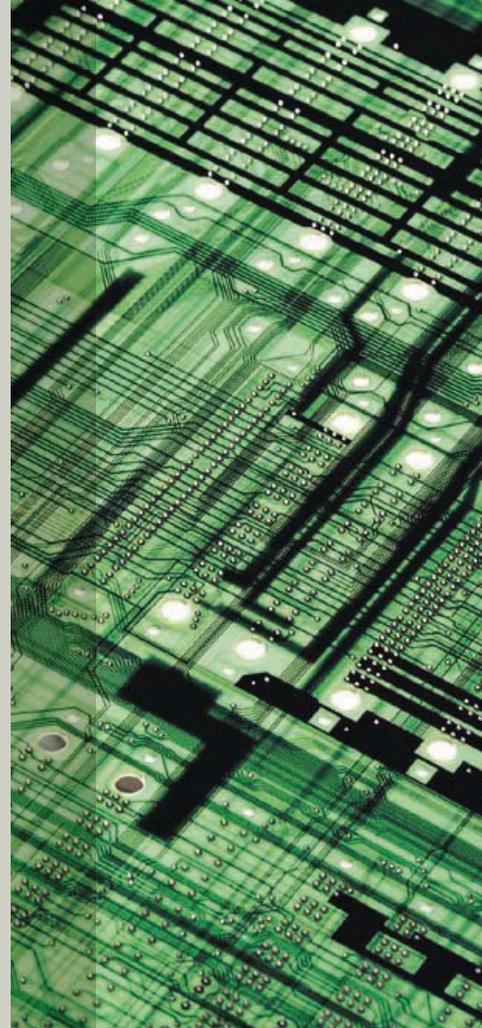
Mr. Ned Costello resigned from the Board of SFI with effect from 11 January 2007.

Mr. Martin Shanagher was appointed to the Board with effect from 22 January 2007.

1 Prof. Jane Grimson resigned her position as a Board Member of SFI with effect from 31 March 2008.

2 Prof. Makarow was appointed as the new Chief Executive Officer of the European Science Foundation (ESF) based in Strasbourg. She resigned her position as a Board Member of SFI with effect from 1 January 2008.

3 Prof. Mark Keane, as interim Director General of SFI, and Prof. Patrick Fottrell, as Executive Chairman, were members of the Board Sub Group on Programme Grants to 31 January 2007 and 30 June 2007, respectively.



CHAIRPERSON'S STATEMENT



I am pleased to introduce the Annual Report and Financial Statements for Science Foundation Ireland (SFI) for 2007. This report provides a comprehensive overview of SFI's accomplishments in 2007. Over the past 12 months

SFI has achieved a significant level of investment while maintaining its commitment to high quality research. 2007 was a record year for investment by SFI. 570 awards were approved involving a financial commitment of almost €365 million to higher education institutions throughout the country. This record level of investment is a clear indication of SFI working to implement the ambitious national objectives set down in the Government's Strategy for Science, Technology & Innovation (SSTI) 2006-2013. SFI continues to be a key player in the development of a global knowledge based economy where the vision and challenge is that, by 2013, Ireland will be internationally renowned for the excellence of its research and will be to the forefront in generating and using new knowledge for economic and social progress within an innovation driven culture.

During 2007, SFI introduced a number of highly successful new award programmes, such as the SFI Strategic Research Clusters (SRCs) and SFI Stokes Professorships and Lectureships Programmes, designed to address gaps in the current research portfolio. SFI will continue these efforts in the coming years in order to build world-class research teams across the Irish Higher Education Institutes (HEIs), increase the number of high quality researchers and therefore contribute to increasing the output of PhDs, which is a key objective of the SSTI.

Following an international competitive recruitment process, Prof. Frank Gannon took up the position of Director General on 2 July 2007. Prof. Gannon is an internationally successful researcher and is familiar with SFI as a former Board Member. Through his current and previous roles he combines both a strong world-class research background with the appropriate administrative and management skills and is well placed to lead SFI as it moves forward to the next phase of its development and focuses on the challenges set down in the SSTI.

Since his appointment, Prof. Gannon has carried out a major re-organisation in SFI and has put in place a strategic planning and programme process to gear SFI up for the next stage of its development, including the SFI strategy for the period 2009-2013.

Through the new implementation arrangements established to support the SSTI, even closer links have been forged between SFI and other Government Departments and State Agencies, in particular with Forfás, Enterprise Ireland, IDA Ireland and the Higher Education Authority (HEA). I wish to acknowledge the co-operation and support provided by other Government Departments and state agencies to SFI in carrying out its role.

I would like to acknowledge and express sincere thanks in particular to the former Taoiseach, Mr. Bertie Ahern, TD, and the former Minister for Enterprise, Trade and Employment, Mr. Micheál Martin, TD, and indeed other Government Ministers, including the current Taoiseach Mr. Brian Cowen T.D., for their support and ongoing commitment to SFI during the past year.

I would like to express my sincere thanks to Prof. Mark Keane, who acted as interim Director General until the end of January 2007 and prior to this was Director ICT, and Dr. Gary Crawley, Director, Frontiers Engineering & Scientific Research Directorate, for their enormous and lasting contribution to SFI and Irish science, both of whom departed from SFI in 2007. I wish them both every success in their future roles.

I would like to express my thanks and appreciation to my fellow Board Members and the staff of SFI for their outstanding commitment during 2007.

SFI is now well placed to move forward and implement the priorities set down by Government in the SSTI. SFI will continue to make strategic investments in the people, ideas and partnerships essential to outstanding research in strategic areas, to build in Ireland research of globally recognised excellence and nationally significant importance.

Prof. Patrick Fottrell
Chairperson

DIRECTOR GENERAL'S STATEMENT



It is a pleasure to contribute for the first time to the SFI Annual Report. I took up the position of Director General of SFI in July 2007, when I moved back

to Ireland from Heidelberg, Germany, where I was Executive Director of the European Molecular Biology Organisation (EMBO). Most of the programmes that are reported upon were already in progress. Therefore credit for an extremely productive year for SFI goes to the staff and management of SFI and my predecessors as Director General.

When moving to a new organisation there are lots of uncertainties. The perception from the outside is occasionally not matched by the reality. In the case of SFI I have to report that the reality is just as good as the view that I had formed prior to joining the organisation. The focus on excellence and the other core values of SFI that are outlined on page 2 is evident on a daily basis.

The current position of SFI is one where the portfolio of activities of the organisation has been changed and moulded to the varying opportunities that arise as the Irish scientific community strengthens. The timeliness of introducing further activity designed to bring industrial research and academic research closer together was reflected in the very strong applications which were obtained for the new SFI Strategic Research Clusters (SRCs) programme. The number of research groups that were added to the SFI Principal Investigators programme points to SFI matching, in a timely manner, the demands of capacity building that are implicit in the Government's National Development Plan and Strategy for Science Technology & Innovation (SSTI) 2006-2013.

As SFI addresses the challenges of converting "brains into business", the investment in high-quality research is being reflected in higher rankings of the Irish scientific output while reports from sister organisations such as IDA Ireland and Enterprise Ireland indicate that the quantity of research carried out by industries located in and locating to Ireland is increasing steadily.

While the direction of SFI is regarded as correct and many achievements are outlined in this Annual Report, there is no sense of complacency within the organisation. New initiatives will be introduced in 2008 to address some gaps in the overall system. This will contribute to achieving a sustainable high-quality productive and relevant research output. I have often said that there are opportunities that arise from research and the truth of this is beginning to be seen in that 2007 was a significant step on the pathway to realising the ambitious goals that have been set for us.

A handwritten signature in black ink, appearing to read 'Frank Gannon'.

Prof. Frank Gannon

Director General

Science Foundation Ireland

OVERVIEW OF ACTIVITY 2007

In 2007, six years on from its first grant award, SFI is moving into a new phase of implementation as the organisation focuses on delivering the ambitious targets set down in the SSTI. Since its establishment in 2001, SFI has approved over 1,800 awards across all its programmes, representing a substantial investment commitment of over €1.04 billion as it continues to build a high quality research environment in Ireland.

During 2007, SFI continued to play a pivotal role in the implementation of the SSTI, with the overall objective of ensuring that Ireland will be renowned for the excellence of its scientific research. SFI is required to deliver an additional 240 Principal Investigators (PIs) over the period of the Strategy and is already ahead of target by increasing the number of PIs by 84 over the 2006-2007 period.

- Total payments of grants to research bodies in 2007 amounted to €156.6m
- SFI approved 570 new awards to 19 research bodies in 2007.
- €71m was awarded to 12 SFI Strategic Research Clusters (SRCs) involving partnerships with 43 distinct companies
- During 2007 SFI committed over €69.2 million under the Principal Investigator Programme.
- SFI approved funding of €16m for a new SFI CSET, the Next Generation Localisation, led by Dublin City University (DCU).
- SFI approved €44.55m under the Stokes Professorships and Lectureships programme to create 67 new research posts in HEIs.
- Under the Research Frontiers Programme (RFP) 2007, SFI awarded funding to 168 researchers in 14 HEIs amounting to €26m.
- SFI made an award to the Tyndall National Institute (TNI) at UCC of €26m to fund phase 2 of the Capital Development Building Programme.
- SFI awarded over €4m to four leading young ICT and Biotechnology researchers under its President of Ireland Young Researcher Award (PIYRA) scheme in 2007.
- In October 2007, SFI announced the ten recipients of the SFI/Dell Young Women in Engineering Scholarships 2007. Each scholarship is valued at €20,000.
- Over 350 SFI supported researchers attended the two day SFI Science Summit in Citywest, Dublin.
- Forty teachers participated in the Secondary Teacher Assistant Researchers (STARs) programme spending between six and eight weeks with SFI funded research teams during the summer of 2007.
- SFI attracted 11 overseas based researchers to Irish research bodies. In addition, 16 researchers participated in the ETS Walton Visitor Programme during 2007.
- 189 undergraduate science students from Ireland and abroad participated in the Undergraduate Research Experience and Knowledge Award (UREKA), spending the summer undertaking research projects in Irish HEIs.

SFI Key Statistics 2007

SFI has for the first time undertaken a survey to gather key data from SFI supported researchers. The survey was sent to 533 SFI grant holders, of which 500 grant holders responded. The replies refer to the position as of 31 December 2007.

- In the teams led by the 500 respondent grant holders, there were 1,909 SFI-supported positions, of which 52% were PhD students and 32% are Post Doc positions.
- During 2007, 202 Post Docs left these research teams, and of these
 - 38% went on to another Post Doc;
 - 23% became lecturers;
 - 19% took up positions in industry.
- During 2007, 116 PhD graduates left these teams, and of these
 - Three quarters stayed in Ireland;
 - 61% went on to a Post Doc;
 - 28% took up positions in industry.
- 18% of respondent grant holders were female.
- 40% of the members of SFI supported research teams were female.
- The 500 researchers published 1,750 refereed articles where the research was directly funded by SFI; an average of 3.5 articles per grant holder.
- Researchers presented 1,776 papers at international conferences and 264 papers at Irish conferences.
- Researchers delivered 1,113 oral presentations outside Ireland at conferences and 686 in Ireland.
- Researchers reported a total of 626 industrial collaborations spread across Small Medium Enterprises (SMEs) and Multi National Corporations (MNCs).
- 111 researchers reported 222 collaborations with SMEs.
- 124 researchers reported 234 collaborations with MNCs that have significant Irish operations with over 100 employees.
- 93 researchers reported 170 collaborations with MNCs that have Irish operations with less than 100 employees.
- Researchers reported filing 82 patents, 11 patents were granted in 2007.



Pictured at the announcement of the SFI CSET and SRC research awards were, from l-r: Prof. David Brayden, UCD; Prof. Kingston Mills, TCD; Prof. Frank Gannon, Director General SFI; Prof. Josef van Genabith, DCU; Mr. Micheál Martin, TD, Minister for Enterprise, Trade & Employment; Prof. James MacElroy, UCD; Prof. Alexander Evans, UCD, and Prof. Patrick Fottrell, Chairperson, SFI



**Prof. Chris Dainty,
Professor of Applied
Physics, NUIG**

Professor Chris Dainty moved to NUIG from Imperial College in 2002 under a five-year SFI PI Award, which was renewed last year until 2012. At NUI Galway he founded the Applied Optics Group, which now numbers approximately 25 researchers. The group's research focuses on four areas: adaptive optics, vision science, imaging and scattering. Recently it hosted two major international conferences, "Engineering the Eye" in 2006 and "Adaptive Optics in Industry and Medicine" in 2007. Several industrial collaborations are in progress and more will come on stream in 2008. For the period 2005 to 2007, Prof Dainty served on the Board of Directors of the Optical Society of America, and he is currently on the Executive Board of Photonics 21, the European Technology Platform. "Although we do applied research, we focus on the fundamental aspects and gaining a basic understanding of the problems to be solved", says Prof Dainty. "At the same time, we look for opportunities to commercialise our work, and we have two contracts from Enterprise Ireland to exploit our SFI-funded research."

1 SFI PROGRAMMES

A SFI Centres for Science, Engineering & Technology (SFI CSET)

The SFI CSET programme is designed to build a critical mass of excellence for Ireland in areas of Bio and ICT that will shape the future of science and engineering research. SFI CSETs are world-class research centres that bring together researchers in multidisciplinary teams in partnership with industry to conduct cutting-edge research that will bring long-term economic and societal benefits. At the end of 2007, SFI CSETs had established collaborations with 39 distinct companies. In addition, through their education and outreach activities, SFI CSETs are playing an important role in increasing the understanding of science and highlighting the career opportunities provided by research in Ireland to young people.

In 2007, SFI approved a new SFI CSET, the Centre for Next Generation Localisation, in DCU. In addition, the seven existing SFI CSETs made considerable progress in terms of their scientific research and education and outreach activities.

(ii) Next Generation Localisation SFI CSET

The Next Generation Localisation SFI CSET, which was awarded €16.85 million, is led by Prof. Josef van Genabith, at DCU. This SFI CSET will develop the next generation of high tech automatic language translation. Its five year research programme will transform an important sector of Ireland's global software business – localisation – as well as being a key driver of the global content distribution industry. The academic partners collaborating in the project are DCU, UCD, University of Limerick (UL) and TCD, and the industry partners are IBM, Microsoft, Symantec, Dai Nippon Printing and Idiom Technologies, as well as key Irish SMEs; Alchemy, VistaTech, SpeechStorm and Traslan.

Prof. Werner Arber, Nobel Laureate, and Prof. Frank Gannon at the SFI Science Summit 2007



Dr. Padraic Fallon
School of Medicine, TCD

Irish children have the fourth highest prevalence of asthma in the world, with over 500,000 people in Ireland suffering from the condition asthma. Ireland is thus at the epicentre of a global epidemic in allergic conditions. A key unanswered question is, what factor(s) has led to the escalation in allergic conditions in people in modern societies? My research is focused on the role of parasitic worm infection, endemic in developing societies with low allergies but now absent in developed countries where allergies have escalated, as one factor that may explain the rise in allergies. My group have already shown that the helminth *Schistosoma mansoni* can render mice refractory to disease in experimental models of anaphylaxis, asthma and inflammatory bowel disease. SFI are enabling me to adopt a two pronged strategy to exploit host-pathogen co- evolution to develop new therapies for allergies. First, we are dissecting the novel mechanisms worms have evolved to modulate innate and adaptive immunity, and second, we are identifying the worm molecules with therapeutic potential.

For allergic diseases, and many other conditions, there is a growing need for new treatment strategies. However, current drug discovery approaches are not delivering. This is reflected by data from 2007, which was the year with the lowest number of novel drugs approved by the US FDA in 25 years, with only 19 new molecular entities or biologics approved. The international pharma and biotech sector is looking to alternative and unconventional pipelines to discover new drug entities. In supporting my allergies research SFI is ahead of current trends by taking the lead in endorsing a novel approach to drug discovery. Funding from SFI in 2007 to support this research included an SFI Principal Investigator award (€1.68m), an equipment grant (€0.75m) and a Stokes Professorship in the School of Medicine, TCD.

Ireland already has a substantial global footprint in the localisation industry; the process of adapting digital content, download manuals, software and other materials to different languages and cultures. The SFI CSET will tackle three critical problems for the Localisation Industry:

1. Volume:

The amount of content to be translated and localised to the destination culture and environment is growing rapidly and massively outstrips the supply of human translators.

2. Access:

Powerful, small devices such as mobile phones and PDAs require novel technologies integrating speech and text to support "on the move" delivery of and access to multilingual information.

3. Personalisation:

A new demand has rapidly emerged for the adaptation of a huge amount of multilingual content now available on the web, for individual needs. It needs "instant" localisation and personalisation to meet the demands of the users.

During 2007, the seven existing SFI CSETs as set out below made considerable progress in terms of their research work and education and outreach activities.

(ii) Alimentary Pharmabiotic Centre (APC)

The Alimentary Pharmabiotic Centre in UCC is focused on the exploration and exploitation of gut microbiota in health and disease. The APC has grown in scope, scale and international stature since its launch four years ago, and represents an excellent example of two organisations (UCC and Teagasc) collaborating successfully in the bioscience area and interacting with industry partners.

Recently, the partnership between the APC and GlaxoSmithKline (GSK) has greatly enhanced the investment in, and scale of, research in development of new therapies for gastrointestinal disorders. A particularly noteworthy example of tripartite collaboration between academia (APC), industry SME (Alimentary Health Ltd) and the multinational sector (GSK) has been the successful joint application for 7th Framework EU funding.

The success of the science driving the APC has been quantifiable by conventional metrics including international peer-reviewed publications. These amount to over 300, with impact in terms of citations, journal covers, prompting editorials and commentaries, awards and successful technology transfer.

Contributions to industry and society in the area of education and outreach have been equally progressive and the APC recently updated the schools' website Microbe Magic (<http://microbemagic.ucc.ie>).



Prof. Andy Way
School of Computing,
DCU

The aim of the Prospect Project is to investigate novel methods of automating the translation process for Arabic-English and Chinese-English. The project is led by Prof. Andy Way of the National Centre for Language Technology in the School of Computing at DCU, with two post-doctoral researchers and two PhD students. Prof. Way has received funding under the Principal Investigator Programme. Since the project started in September 2005, they have published 21 conference papers at first-rank internationally-refereed proceedings, together with four other related journal and conference papers. In addition, the group has developed the cutting-edge MaTrEx machine translation (MT) system, which in a recent large-scale open evaluation was ranked first for Arabic-English compared to systems from other leading MT groups from around the globe.

Prof. Way's MT group has also played a pivotal role in the success of the recently funded SFI CSET in Next Generation Localisation (NGL), to be coordinated at DCU. Within the NGL CSET, Prof. Way's team will extend the research carried out to date with a greatly enlarged team to enable DCU to continue to be recognised as a world centre for MT.

(iii) Biomedical Diagnostics Institute (BDI)

The primary objective of the BDI, based in DCU, is the development of novel diagnostic devices enabling early-stage diagnosis and monitoring of major diseases. These devices are targeted for use at the point-of-care and will ultimately enable efficient coupling of diagnosis and treatment (theranostics). In the past year the scale of the team at BDI has grown markedly, with more than 100 people involved in BDI activities. BDI research accomplishments are reflected in the 22 papers, 11 invention disclosures and five patent applications generated during 2007.

The BDI reinforced its strong collaboration with its six industry partners through development of a new stream of research activity with BD Biosciences, a segment of Becton Dickinson based in San Jose, California. In addition, a novel veterinary diagnostic assay, developed at the BDI, has been transferred to Irish SME, Enfer, for further optimisation and subsequent commercialisation.

Education and outreach remain an important focus for BDI activities. During 2007, the first cohort of students graduated from the BDI-initiated M.Sc. in Biomedical Diagnostics. The BDI "Me and My Body" (MAMBO) programme, developed with a focus on the Irish primary science curriculum, has been delivered to 40 primary schools and has been introduced to over 1,000 schoolchildren. BDI now hopes to distribute the MAMBO programme to every primary school in the country.

(iv) Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN)

In 2007, CRANN, based in TCD, grew its Principal Investigator base from ten to 16 and now has 200 researchers. In parallel with the growth of its research base CRANN has moved into its state-of-the-art research facility, the Naughton Institute. The increased research base resulted in the publication of 42 papers. CRANN also developed a national leadership position in nanoscience research and successfully coordinated eight Irish third level institutions to establish the NANOTEIRE consortium, which was awarded €31.6m under PRTL14.

Furthermore, CRANN was awarded significant funding in the 2007 SFI equipment call. When this instrumentation is operational CRANN will be able to benchmark its facilities against the best globally. CRANN continued its successful industry partner collaboration with Intel and Hewlett-Packard, and now has ten industry researchers embedded. CRANN has also added a new SME partner, Cellix. The Science Gallery, a new science communication facility for Ireland, was established as a separate organisation. Finally, CRANN leveraged €23.7m in funds from non-SFI sources and developed a strategic plan which will form the basis of a roadmap for the next five years.



Dr. Geraldine Boylan
School of Medicine,
UCC

Dr. Boylan is a recipient of a Principal Investigator Career Advancement Award (PICA) from SFI to develop novel seizure detection algorithms for newborn babies. This research involves a multidisciplinary team of clinicians, scientists and engineers from the departments of Paediatrics & Child Health and Electronic & Electrical Engineering at UCC. The team is investigating the use of EEG and other physiological signals analysis for the investigation of brain injury and seizures in newborn babies.

Seizures or 'fits' are the most common neurological emergency encountered in the neonatal intensive care unit (NICU) and are caused by problems such as lack of oxygen around the time of birth, haemorrhage and meningitis. Seizures can be very difficult to detect in newborns and the only accurate tool for diagnosis is EEG monitoring, a measure of electrical brain activity. Newborn EEG interpretation is a very specialised skill and few experts are available. The focus of Dr Boylan's research is to automate EEG interpretation so that seizures can be detected reliably in the NICU.

This SFI funding has already led to the development of a set of EEG and ECG features that are being used in a novel seizure detection classifier for newborns. The first results from this research have been published in the journals IEEE Transactions in Biomedical Engineering and Clinical Neurophysiology.

(v) Centre for Telecommunications Value-chain Research (CTVR)

The Centre for Telecommunications Value-Chain Research in TCD is continuing to build an international reputation for itself, and Ireland, in many areas of telecommunications research. During 2007, CTVR researchers published/produced over 150 papers, one third of which were published in exceptionally high impact journals.

The CTVR's principal partnership with Alcatel-Lucent and Bell Labs Ireland has been augmented by relationships with Xilinx, EADS and TDK. In summer 2007, the CTVR was responsible for attracting three major international conferences and industrial meetings to Dublin making Ireland a focal point for top quality wireless research worldwide. Technology transfer activities are progressing well and the CTVR proactive policies for propelling valuable Intellectual Property (IP) through to commercialisation are starting to bear fruit. Currently, multiple licensing opportunities and pre-start-up companies are being vigorously pursued.

The CTVR has created many new opportunities for graduate students with the commencement of the Network Mathematics initiative in association with the Hamilton Institute in NUI Maynooth. This will create a suite of graduate courses lectured by some of the most eminent mathematicians worldwide. In addition, the new course delivered jointly with Virginia Tech on the area of cognitive radio allows Irish students to tap into this global community using video conferencing links. CTVR's outreach activities saw The Resistors animated movie being shown on national TV, thereby engaging school children on scientific themes and driving traffic to the website aimed at primary school science classes.

(vi) Digital Enterprise Research Institute (DERI)

The Digital Enterprise Research Institute, established in NUIG in 2003, conducts research into the semantic web and semantically enhanced web services. DERI Galway, with over 100 people, has grown to be the world's largest web technology research institute.

DERI published over 80 papers in 2007 including six papers accepted for the International Semantic Web Conference (ISWC) and five for the European Semantic Web Conference, more than any other institution. Researchers from DERI are also involved in 11 standardisation groups in either W3C or OASIS.

During 2007 DERI continued to collaborate with its industry partners, Hewlett Packard and Storm Technology. The education and outreach programme at DERI is very successful; DERI aided projects collected three national awards in 2007. DERI has also worked closely with NUIG's Technology Transfer Office to educate DERI personnel on commercialisation and IP processes.

“Ireland is serious about building a premier science and technology enterprise”

Dr. Gil Lee, SFI Stokes Professorship, UCD

(vii) LERO – the Irish Software Engineering Research Centre

Lero is the Irish Software Engineering Research Centre. In 2005, Lero was jointly established by the UL, DCU and UCD with UL as leading partner institution, with an award of €9.1m from SFI.

During 2007, Lero expanded its staffing, industrial links and outreach activity, while substantially increasing its research activity and output. Four full time postdoctoral researchers and one part time postdoctoral researcher were recruited at UL (2.5) and TCD (2); and Lero also added seven full-time postgraduate students. CSET supported researchers published 18 papers in refereed international journals, 46 papers in refereed conferences and 31 workshop papers.

Under the HEA PRTL4 programme, €7.3m was awarded to provide a building for Lero at UL and to fund the establishment by DCU, TCD, UCD and UL, of a Lero Graduate School in Software Engineering (LGSSE). Lero researchers have attracted additional project funding from Enterprise Ireland and through the NESSI ETP, from the EU Framework 7 programme. Industry is involved in all of the new projects and Lero continues to work with new and existing industry partners. With a new, full-time Outreach Manager, Lero has begun working with secondary schools across Ireland to promote understanding of the joys and challenges of software engineering.

“Ireland has a top notch environment and infrastructure for research ”

Dr. Arum Bokde, SFI Stokes Lectureship, TCD



Dr. Frank Wellmer,
Smurfit Institute of Genetics,
TCD

Dr. Frank Wellmer's research aims at understanding the molecular processes that control the development of higher plants. To this end, he studies how flowers and floral organs are formed in the model plant *Arabidopsis thaliana*. An SFI Principal Investigator award in 2007 provides funding to dissect the gene regulatory networks underlying flower development on a genome-wide scale. A second SFI grant under the Research Frontiers programme supports work aimed at elucidating how plant development is controlled by the regulation of protein stability.

“Funding from SFI has allowed us to set up a state-of-the-art laboratory and to engage in challenging research projects that should provide novel and exciting insights into key developmental processes in plants. Furthermore, we hope that, during the course of this work, we can develop novel analysis methods and tools that are useful for other researchers in our own field and beyond.”



Pictured at the Science Foundation Ireland Science Summit 2007 were Mr. Micheál Martin, TD, Minister for Enterprise, Trade & Employment, together with European Commissioner, Janez Potocnik, Commissioner for Science and Research and Prof. Frank Gannon, Director General, SFI.

(viii) Regenerative Medicine Institute (REMEDI)

REMEDI, was established in NUIG in 2003 to conduct research in regenerative medicines, an emerging field that combines the technologies of gene therapy and adult stemcell therapy. During 2007 REMEDI secured €21m to build a Clinical Research Facility. Researchers at REMEDI had five reviewed articles and book chapters, and 32 peer-reviewed journal papers were published or are in press. Highlights of REMEDI-industry interactions in 2007 included the commencement of a new €6.25m partnership with Smith & Nephew. Total additional research funding awarded in grant and private sector funding during 2007 amounted to €39m.

REMEDI continued its successful education and outreach programme. During 2007 four students successfully defended their PhD work and two more have submitted theses. REMEDI took part in both the SFI STARs and UREKA programmes. Funding was received from the Wellcome Trust to expand the school debating contest on a national basis. Fifteen students enrolled in the M.Sc. course in Regenerative Medicine which commenced in September at NUIG.



Prof. Brian Norton, DIT

Prof. Brian Norton is President of DIT. His research concerns solar energy applications. A current SFI-funded project with Dr Max Ammann, Dr Shynu Nair and Maria Jose Roo-Ons, School of Electronic and Communications Engineering, and Dr Sarah McCormack, Dublin Energy Lab (<http://dublinenergylab.dit.ie/index.html>) at DIT investigates combined photovoltaic (PV) and cellular antenna panels for building façades. Installed at lower cost in more network locations, as no external power would be required, such self-powered networks would be oblivious to grid-supply interruptions and robust to natural or man-made disasters. The research has provided unique insights into the interactions between antenna theory and design and PV characteristics enabling optimisation of new generic devices.

Only ~16% of solar energy incident on PV is converted to electricity; the remainder heats the PV lowering its efficiency. In another SFI-funded project, also in collaboration with Dr McCormack together with Ahmed Hasan and Jawad Sarwar at DIT and Dr Huang of Exeter University, the use of phase change materials (PCM), that absorb energy as latent heat at a constant phase transition temperature to minimise PV temperature rises, is being explored. The experiments and detailed simulations have contributed to a more rigorous understanding of integrated PV/PCM systems to optimally improve PV efficiency.

B

Strategic Research Clusters (SRCs)

In 2007, SFI made 12 awards for the first time under the Strategic Research Clusters programme. This new awards programme is designed to facilitate the clustering of outstanding researchers to carry out joint research activities in areas of strategic importance to Ireland, while also giving the time and resources to attract and cultivate strong industry partnerships that can inform and enhance their research programmes.

Following the call for proposals in mid-2006, an information session attended by 215 researchers was held on 21 August 2006 to give further information on the programme and the award process. Forty two pre-proposal submissions were received by the deadline of 3 November 2006 (26 Bio, 16 ICT) and, following expert evaluation, 22 were invited to submit full proposals (12 Bio, 10 ICT). Following detailed site reviews of these 22 proposals, 12 awards were made with a total commitment of €71m. A total of 43 distinct companies have committed to engaging directly with the research projects, together with a number of public bodies. They represent a broad base of industrial sectors and many are engaging with SFI funded research for the first time. IDA and Enterprise Ireland have played a significant role in introducing and establishing the collaborative links to the companies involved in the SRC programmes. In addition, the HEA, Health Research Board and Forfás participated in the Strategic Review Panel. In terms of human capital, approximately 490 highly skilled personnel will participate in the teams established by these awards and this includes senior researchers PIs, Post Docs, and PhD Students.

SRC Funded Projects 2007

Awardee	SRC	Lead Institute	Funding (€m)
Prof. Alexander Evans	Reproductive Biology Research Cluster	UCD	€7.40
Prof. Martyn E. Pemble	Functional Oxides and Related Material for Electronics	TNI*	€4.24
Prof. David Brayden	Irish Drug Delivery Research Network	UCD	€5.27
Prof. Kieran Hodnett	Solid State Pharmaceuticals Cluster	UL	€6.97
Prof. A. Stewart Fotheringham	Advanced Geotechnologies	NUIM	€7.02
Prof. Karsten Menzel	ICT for Sustainable and Optimised Building Operations	UCC	€6.20
Dr. Frank Hudson Peters	Photonics – Integration “From Atoms to Systems”	TNI*	€5.59
Prof. Kenneth Dawson	BioNanoInteract	UCD	€7.24
Prof. Abhay Pandit	Network of Excellence for Functional Biomaterials	NUIG	€4.34
Dr. Liam Murnane	Efficient Embedded Digital Signal Processing for Mobile Digital Health	UCC	€3.97
Prof. Kingston Mills	Immunology Research Centre	TCD	€7.50
Prof. James MD MacElroy	Advanced Biomimetics for Solar Energy Conversion	UCD	€4.74

*TNI – Tyndall National Institute, UCC



Dr. Créidhe O'Sullivan
Department of Physics, National University of Ireland Maynooth, (NUIM)

Dr. Créidhe O'Sullivan is a member of the Space Terahertz Optics Group of the Department of Experimental Physics. The group specialises in designing and analysing the optics of telescopes operating between visible and radio wavelengths. The SFI Research Frontiers Programme supports the group's involvement in the European Space Agency's PLANCK Surveyor project, due for launch next year, and the ground-based QUaD experiment at the South Pole. Both these projects aim to map the very faint temperature and polarisation fluctuations that were imprinted on the Cosmic Microwave Background, relic radiation from the Big Bang, in the early universe. QUaD is the most sensitive instrument currently in operation and this is the first experiment designed specifically to measure the extremely faint polarisation signal. With these measurements cosmologists will be able to uniquely constrain fundamental cosmological parameters as well as test inflationary theories of the early universe.

C

SFI STOKES Professorships and Lectureships Programme

The SFI Stokes Professorships and Lectureships Programme is designed to allow the strategic recruitment of research-active faculty staff to support the implementation and achievement of SSTI targets. SFI approved €44.55m in funding awards to create 67 new research posts in Higher Education Institutes (HEIs), under the SFI Stokes Professorships and Lectureships Programme. 2007 is the first year of awards under the programme and SFI received 172 applications for lectureships and 89 for professorships. Following an international review process SFI approved 32 Professorship and 35 Lectureship awards. Successful candidates are internationally-competitive, research-active academics, performing at the highest level appropriate to their career point. In line with the SSTI goals, the programme has been successful in attracting highly skilled research-active individuals to Ireland; 49 of the 67 approved candidates are foreign based researchers. Schools within the HEIs nominated the applicants and are now completing contract negotiations with the successful candidates.

Breakdown of Stokes Awards by Research Body

Research Body	Number of Awards
University College Dublin	16
Trinity College Dublin	14
National University of Ireland Galway	8
National University Ireland Maynooth	6
Dublin Institute Technology	5
Dublin City University	4
Royal College of Surgeons Ireland	3
University College Cork	3
University of Limerick	3
Teagasc	2
Dundalk IT	1
IT Sligo	1
IT Tallaght	1
	67



Pictured with Prof. Frank Gannon, Director General SFI and Mr. Micheál Martin TD, Minister for Enterprise Trade and Employment and Prof. Patrick Fottrell, Chairperson, SFI, are the SFI Stokes Professorships and Lectureships Nominees at the announcement of the awards at the Shelbourne Hotel, Dublin on 13 December 2007.

D SFI Principal Investigator Programme (PI)

In 2007, SFI approved 37 awards under the Principal Investigator (PI) Programme committing over €69.2 million to support world-class researchers in the fields of science and engineering that underpin biotechnology and information and communications technology. Significant awards were made to Prof. Catherine Godson, UCD; Prof. Luke O'Neill, TCD; Prof. Rosemary O'Connor, UCC; Prof. Igor Shvets, TCD; Prof. Chris Dainty, NUIG, Prof. Mani Ramaswami, TCD; Prof. Doug Leith and Prof. Robert Shorten, NUIM.

E Research Frontiers Programme (RFP) 2007

SFI approved awards to 168 researchers in 13 research bodies under the Research Frontiers Programme 2007. The programme supports high-quality, novel exploratory research in the third-level sector in fields embracing the Bio Sciences, Chemistry, Earth Sciences, Mathematics and Computer Science, Physics and Engineering. The 168 projects were awarded over €26m over three years. The average award size was €155,000 in direct costs over three years and the overall success rate was 24%.

In the past three and a half years the RFP has made 563 awards, representing a total commitment of €102m. Almost all grantees support at least one post-graduate student, which means that currently there are over 480 post-graduate students supported by this programme. As the individual programmes come to an end, more than 100 highly trained researchers will become available each year to be placed in industry in Ireland as well as in Irish third level institutions, thus making Ireland an attractive location for knowledge-based industries.

RFP 2007

General Discipline	Total	No. of Awards
Biochem	€1.9m	12
Biomed	€3.0m	20
Chemistry	€3.5m	21
Computer Science	€2.2m	15
EEEEOB	€1.4m	9
Engineering Elec	€1.4m	8
Engineering Mech	€1.8m	11
Genetics	€1.4m	10
Geosciences	€2.1m	14
Materials	€2.1m	13
Mathematics	€2.1m	16
Physics	€3.1m	19
Grand Total	€26m	168

* EEEEEOB - Ecology, Evolutionary Biology, Environmental Biology & Organismal Biology



**Dr. Una FitzGerald,
NCBES, NUIG**

Dr. Una FitzGerald is funded under the Research Frontiers Programme 2006. Research is focused on establishing if stress to the endoplasmic reticulum (ER) contributes to white matter damage occurring in the aftermath of a stroke. Primary and cell line oligodendrocytes incubated under a variety of conditions in a hypoxia chamber or treated with chemicals, are being used to model ischaemia in vitro. Preliminary results, presented recently at the Apoptosis 2008 meeting in Luxembourg, demonstrated that oligodendrocyte precursors are sensitive to ER stress induced by an ER calcium pump inhibitor, but are less responsive to exposure to a chemical inducer of hypoxia. This oligodendrocyte culture-based study complements and strengthens on-going and recently-published Multiple Sclerosis-related research (supported in part by SFI) being carried out in the same lab, which demonstrated that raised levels of ER stress are found primarily at the edge of chronic active MS lesions. In some cases, the presence of ER stress coincides with increased levels of a marker of hypoxia. Continuing RFP-supported research will help to work out if protection of oligodendrocytes from the effects of ER stress can prevent ischaemia-induced death occurring in a variety of neurodegenerative disorders including stroke and MS.

F

President of Ireland Young Researcher Awards (PIYRA)

2007 was the fourth year of the President of Ireland Young Researcher Award Programme which recognises outstanding early career engineers and scientists from Ireland and abroad. The award is a rigorous competition designed around a single goal; to identify researchers who, at an early stage in their careers, have shown exceptional promise of becoming international research leaders.

The four winners in 2007 returned to Ireland from universities in Europe and the USA to undertake their research. The four award recipients have been allocated almost €1m each to conduct their research projects in Ireland over the next five years.

The award winners were:

- Dr. Stephen Rea was at EMBL, Germany. PIYRA award to NUIG;
- Dr. Karen Keeshan was previously at the University of Pennsylvania, USA. PIYRA award to UCC;
- Dr. Claude Ederer was previously at Columbia University, New York, USA. PIYRA award to TCD;
- Dr. Silvia Giordani was previously at University of Trieste, Italy. PIYRA award to TCD.



President Mary McAleese announced the 2007 winners of the President of Ireland Young Researcher Award (PIYRA) at a ceremony in Áras an Uachtaráin on 28 May 2007.

Pictured at the announcement of the awards were (from back left) Dr. Ruth Freeman, SFI Scientific Programme Officer, Dr. Claude Erderer, TCD, Dr. Stephen Rea, NUIG, Dr. Maurice Treacy, Life Sciences Director, SFI, Dr. Silvia Giordani, TCD, President Mary McAleese, Dr. Karen Keeshan, UCC.



Dr. Scott Rickard
School of Electrical, Electronic & Mechanical Engineering,
Complex & Adaptive Systems
Laboratory (CASL), UCD

One in three of us will die from cardiovascular disease. Many of these deaths could be prevented if individuals at high risk could be identified at low cost. Auscultation of the heart has long been a powerful yet cost-effective procedure that provides physicians with information on the timing, duration, pitch, location and intensity of heart sounds, thus enabling them to make an initial diagnosis or appropriate referral for additional tests. However, advanced technologies have become so much the standard in the practice of cardiology that auscultation has become a neglected art. Hence, a cost-effective device that would assist the physician in discerning heart sounds would provide physicians with additional information increasing the accurate detection of cardiac abnormalities and reducing the number of unnecessary referrals for more expensive and sometimes invasive procedures. Dr. Scott Rickard, funded under the President of Ireland Young Researcher Programme (2005-2010), is applying recent breakthroughs in the mathematics of blind source separation to the automatic diagnosis of heart sounds. The algorithms developed by his team are capable of partitioning mixtures into their constituent parts which greatly aids the diagnostic process. The research is being carried out in collaboration with cardiologists in St. Vincent's Hospital and international experts in the medical devices industry. The innovative technology developed in this research will allow for the cost-effective non-invasive detection of cardiac abnormalities and prevent the tragedy of premature unnecessary death from treatable cardiovascular disease.

G**Mathematics Initiative**

Following the success of the Mathematics Initiative in 2005, a call was issued in March 2007 for a second Maths Initiative and 14 applications were received from seven institutions. Following a rigorous review process, four applications were approved for funding of €3m over four years.

The **Statistical Methods in Biomedical Imaging** project headed by Prof. Finbarr O'Sullivan at UCC, will receive €990,818 over four years. The proposal focuses on the development of new Statistical Theory and Methods stimulated by the emerging new role for quantitative diagnostic imaging in medical research.

The **Edgeworth Centre for Financial Mathematics**, led by Dr. John Appleby at DCU, will receive €995,260 over four years. This interdisciplinary project in Financial Mathematics brings together teams of researchers in mathematics and finance with practitioners from financial institutions.

The **De Brun Centre for Computational Algebra**, based at NUIG and led by Dr. Graham Ellis, will receive a grant of €500,000 over four years. Three teams of researchers at NUIG will examine inter-related areas of computational algebra, focusing on innovative projects with direct relevance to applied mathematics and engineering.

The **Bio-Statistics & Informatics (BIO-SI)** project at UL, led by Prof. Gilbert MacKenzie, will receive €500,000. This joint research programme involves collaborative work with medical and bio-scientists. Its aim is to develop new methods and models to address substantive research questions, and to provide a major focus for statistical science in Ireland.

H**SFI Equipment Call 2007**

A HEA/Forfás Review published in January 2007 identified a significant equipment deficit in the area of research and development. As a result, SFI, as part of a co-ordinated call with the HEA and EI, issued the SFI Equipment Call 2007. The call was designed to allow access to first-class, state-of-the-art equipment that will allow researchers to continue to conduct high quality research. The goal was to accelerate and enhance research output from both SFI and non-SFI funded researchers through a significant investment in additional resources and infrastructure. A total of 140 submissions were received, of which 80 submissions were approved for funding at a total cost of €31.2m.

2 SFI Reaches Out

Science Foundation Ireland strongly encourages outreach by SFI funded researchers to advance public understanding of science and engineering. SFI supports a number of education and outreach activities. These are designed to promote and provide information on the exciting and groundbreaking research that SFI funds. In addition, these programmes play an important role in encouraging the next generation of researchers - young people - to consider a career in science and engineering research. The initiatives, supported by SFI, include programmes such as UREKA, STARS, SFI/Dell Young Women in Engineering Scholarship, Speakers for Schools and CSETs Education & Outreach.

UREKA Programme

The UREKA programme provides science and engineering undergraduates with the opportunity to work in a cutting edge research environment in Irish research institutions during the summer holidays. SFI issues an annual call for researchers interested in hosting a UREKA Site or Supplement. SFI approved four new UREKA sites for operation during summer 2007. This brought the total number of sites supported to 15. 190 undergraduates participated in programmes at these sites during 2007. UREKA Sites are funded for up to three years.

SFI approved funding for 99 students to undertake UREKA Supplements during the summer 2007. Of the 99 students, 31 were international students from India, France, Poland, Germany, Russia, Japan, Austria, Spain, Chile, the UK, and the USA. SFI invested a total of €1.4m on the UREKA programme in 2007.

SFI/Dell Young Women in Engineering Scholarship Award Winners

2007 was the second year of the awards which are open to female applicants who have completed the Irish Leaving Certificate either in the year they are applying to third-level education or in the previous year. The award aims to encourage more female students into engineering as an undergraduate degree and future career. The ten winners received their prizes from the Minister for Enterprise, Trade & Employment, Mr. Micheál Martin, TD, at a ceremony in Dublin. Supported by SFI and Dell, each award is valued at approximately €20,000, made up of an annual award of €2,000; a Dell notebook computer; the assistance and support of a research active mentor throughout their undergraduate career and the opportunity to spend summers in a research internship in university or industry.



SFI/Dell Young Women in Engineering Scholarship Award 2007.

Pictured with Prof. Frank Gannon, SFI; Mr. Micheál Martin, TD, Minister for Enterprise, Trade & Employment and Mr. Dermot O'Connell, Dell were the 2007 SFI/Dell Young Women in Engineering Scholarship Award winners.

STARs Programme

In 2007, 40 secondary teachers took part in the Secondary Teachers Assistant Researchers (STARs) programme in eight universities throughout the country. The STARs programme aims to disseminate new skills and knowledge to secondary school teachers which, in turn, can be passed onto school pupils to encourage an active interest in science.

Through the STARs programme, secondary teachers receive support to conduct research alongside an SFI-funded researcher or research team during eight weeks of the summer holidays. The goal is to help teachers renew their interest in science as researchers, connect them with science faculty in the universities and institutes of technology, and enhance the teaching of science across the educational system.

One of the STARs initiatives being piloted in Cork is the cancer biology programme for Transition Year students, which will examine how cancer grows inside the body, how it develops and how this fits into everyday genetics and biology. The multi-media associated programme was created by Cian O'Mahony, a teacher in Douglas Community School, Dr. Dan O'Sullivan from Colaiste Chríost Rí and Prof. Gerald O'Sullivan at the Cork Cancer Research Centre, to provide teachers with a practical and relevant tool to use in biology lessons. The work conducted in the laboratories of the Cork Cancer Research Centre was under the guidance of Dr. Mark Tangney.

Speaking Out In Schools

Hoping to have an impact on the next generation of scientists and engineers, SFI funded researchers in third level institutions visit primary and secondary schools to give talks on their own research, on more general science and engineering topics, or on careers in science and engineering. The SFI website has contact details for 67 researchers who give talks in schools. Interesting titles include: Why Blood is Red – Drugs, Vampires, and Medicine; What Happens to the Brain as We Age; The Eye, Vision and Super-vision; Exploring the Maths in your iPod and DVD Player and The Body's Army Against Invaders.



Dr. Frank H. Peters,
Integrated Photonics Group,
Physics Department, University
College Cork, and Tyndall
National Institute, (TNI)

Dr. Frank Peters leads the Integrated Photonics Group located at the TNI and the Physics Department of University College Cork. He was previously based in California working as a research scientist in various companies including Agilent Technologies and Infinera, where he developed the first commercial photonic integrated circuits (PICs). After nearly 15 years of photonic research experience, he joined UCC and Tyndall in 2005. Dr. Peters continues to research in high speed and integrated photonic devices, and is the Photonics Strand leader of the Centre for Telecommunications Value Chain Research (CTVR), Dr. Peters helped consolidate existing collaborations between academic researchers at TNI, UCC, TCD, DCU and CIT and also industrial photonics companies Alcatel-Lucent, Eblana Photonics, Firecomms, Intune Networks and SensL. This has led to the formation of PiFAS – Photonic Integration from Atoms to Systems - an SFI funded Strategic Research Cluster whose purpose is to join existing efforts in photonic devices and systems through photonic integration and packaging.

Education and Outreach by SFI CSETs

All SFI CSETs undertake extensive education and outreach activities aimed at keeping the public aware of exciting new research findings and to encourage young people to study and take up careers in research. These activities include computer games, websites, visitor programmes, videos, teaching packs and TV programmes.



A new education programme for Transition Year students which aims to improve understanding of the genetics and molecular biology of cancer.

Pictured are students David O'Connell from Douglas Community School and Jessica Perrot with Dr. Dan O'Sullivan a Science Foundation Ireland Secondary Teacher Assistant Researcher (STARs) from Colaiste Chriost Rí.

3 Attracting Researchers to Ireland

SFI programmes have been designed to assist Irish research bodies attract outstanding researchers to their institutions from outside of Ireland. Eleven researchers were attracted to Irish research bodies in 2007 through strategic use of SFI programmes by HEIs. Through the ETS Walton Fellowship programme a further 16 researchers undertook short-term research visits to Irish HEIs. In addition, HEIs are finalising contracts with SFI Stokes nominees and, as previously indicated, 70% of SFI Stokes nominees are overseas researchers. It is likely that a significant number of these will relocate to Ireland, thereby increasing substantially the number of internationally competitive researchers based here.

Researcher	Programme	From Research Body / Industry	To Research Body
Prof. Richard Middleton	Research Professor	University of Newcastle, Australia	NUIM
Prof. Stefan Oscarson	Research Professor	Stockholm University, Sweden	UCD
Prof. Matthew Hennessey	Principal Investigator	University of Sussex, UK	TCD
Prof. Cynthia Colinge	Principal Investigator	California State University, USA	TNI
Prof. Marc Achtmann	Principal Investigator	Max Planck Institute, Germany	UCC
Prof. Matthew Dallas Griffin	Principal Investigator	Mayo Clinic, USA	NUIG
Dr. Brian McStay	Principal Investigator	University of Dundee, Scotland	NUIG
Dr. Silvia Giordani	PIYRA	University of Trieste, Italy	TCD
Dr. Claude Ederer	PIYRA	Columbia University, USA	TCD
Dr. Stephen Pec	PIYRA	EMBL, Germany	NUIG
Dr. Karen Keesham	PIYRA	University of Pennsylvania, USA	TCD

ETS Walton Visitor Awards

ETS Walton Visitor Awards programme enables highly qualified academic and industrial researchers resident outside Ireland to carry out research projects of their own choice in Ireland. Research stays are normally between three and 12 continuous months. Sixteen researchers participated in the ETS Walton Visitor Programme during 2007.

ETS Walton Fellowship 2007

Researcher	Home Institution	Host Institution
Prof. Godfrey Beddard	University of Leeds, UK	DCU
Prof. James Philip Cleary	University of Minnesota, USA	TCD
Dr. Stephane Emiliani	Institut Cochin, Italy	UCD
Prof. John Luong	National Research Council, Canada	UCC
Prof. James Martin	McGill University, Canada	UCC
Prof. Oliver O'Reilly	University of California, Berkeley, USA	UCC
Dr. Georg Duesberg	Qimonda, Germany	TCD
Prof. Michael Thompson	University of Toronto, Canada	TNI
Prof. Srinivas Tadigadapa	Pennsylvania State University, USA	TNI
Prof. Paul B. Kirby	Cranfield University, UK	TNI
Prof. Sumit Roy	University of Washington, USA	UCD
Prof. Anthony Hayes	The University of Hong Kong	UCD
Prof. Timothy Porter	University of Wales, Bangor	NUIG
Prof. Kumpati Narendra	Yale University, USA	NUIM
Prof. Dan Marinescu	University of Central Florida, USA	UCC
Dr. Vladimir Minogin	Russian Academy of Science	CIT



Divide and Conquer: The remarkable story of our immune defense system. The SFI ETS Walton visitor, Dr. Philip D. Hodgkin delivered a lecture on 25 July 2007 at the Royal Irish Academy, Dublin.

Pictured on the evening of the lecture at the RIA (from left) Dr. Philip D. Hodgkin, Walter and Eliza Hall Institute for Medical Research, Melbourne, Australia, Ms. Anne Plunkett, Australian Ambassador to Ireland, Prof. Peter Wellstead, Hamilton Institute, NUI Maynooth.

4 Breakdown of Investment by Directorate

Overview of ICT Directorate Investment

Since SFI commenced making awards in 2001, the ICT Directorate has committed €414m to hardware and software projects, funding 1,100 researchers and support staff, almost 130 of whom are Principal Investigators leading substantial research teams. 2007 saw further developments in industry-academia collaboration with the establishment of five ICT SRCs in the areas of Networking & Communications Systems, Knowledge & Web Based Systems, Computer Modelling & Visualisation Systems, IC Research/Semiconductors and Photonics. A new CSET in the area of Next Generation Localisation was also awarded funding of €16.8m in direct costs during 2007. In addition, the ICT directorate continued to support four CSET DERI at NUIG, Lero at UL and the CTVR and Crann at TCD.

Hardware	€m
Nanotechnology	73.0
IC Research / Semiconductors	71.3
Photonics	41.3
Transmission Systems	30.1
Advanced Manufacturing	21.6
Storage	12.7
Total*	250
Software	€m
Software Engineering & Artificial Intelligence	46.3
Networking & Communications System	31.7
Computer Modelling & Visualisation Systems	30.9
Knowledge & Web Based Systems	27.4
Language Technologies	19.7
Information Systems	8.0
Total*	164
Hardware and Software Total*	414

* Total amounts for major awards. ICT also provides other awards under programmes such as Stokes, E.T.S. Waltons, UREKA and STARS.



Dr Thomas Moore, UCC

Dr. Tom Moore's SFI funded research (PI and RFP awards) is underpinned by the evolutionary theory of 'parent-offspring conflict', with a focus on understanding maternal-foetal interactions during pregnancy and in the postnatal period. Dr. Moore is a co-ordinator of the influential 'parental conflict' theory of evolution of imprinted gene expression. Imprinted genes are important regulators of foetal and placental growth and postnatal behaviour, and their deregulation is implicated in diseases of pregnancy, cancer and psychiatric disorders. A major current aim is to investigate the evolution and function of the mouse and human Pregnancy-Specific Glycoproteins (PSG). PSGs are the most abundant placental hormones in the maternal bloodstream during pregnancy and may modify maternal immune responses to the foetus, or other aspects of maternal physiology. Deregulation of PSGs may contribute to diseases of pregnancy and to cancer. Dr. Moore previously received significant HEA funding to develop mouse transgenesis and gene targeting at UCC, techniques which underpin much of his current work.

Overview of Lifesciences Directorate Investment

Since SFI commenced making awards in 2001, the Lifesciences Directorate has committed more than €324m, funding over 940 lifesciences researchers within Ireland in areas as diverse as Agri-Food Bioinformatics/Systems Biology; Molecular & Cell Biology; Immunology; Microbiology; Neuroscience; Sensors/Devices and Pharma-Chem.

The Lifesciences Directorate aims to strategically build upon these identified areas of global excellence, and has identified these areas as strategic areas of investment applied to national economic needs for Ireland. In addition, researchers within these strategic areas are encouraged to cluster with the expertise around them to increase synergy and critical mass. This is already beginning to occur organically in several areas, facilitated by the CSETs and SRCs funded during 2007.

In 2007, the Lifesciences Directorate awarded funding to seven SRCs in areas including Reproductive Biology, Drug Delivery research, Functional Biomaterials and Advanced Biomimetics for Solar Energy Conversion. The Lifesciences Directorate is currently supporting three CSETs; REMEDI at NUIG, APC at UCC and BDI at DCU.

Lifesciences Investment Figures

Sub Directorate	€m
Mol. & Cell Biology	82.5
Sensors/Devices	51.6
Immunology	46.8
Bioinformatics/Systems Biology	40.9
Agri-food	35.0
Neuroscience	32.1
Pharma Chem	24.8
Microbiology	10.5
Total	€324

* Total amounts for major awards. Lifesciences also provides other awards under programmes such as Stokes, E.T.S. Waltons, UREKA and STARS.

“Ireland is perhaps the most exciting place in Europe to do this kind of research. It is at the cutting edge of the continent”

Dr. Nick Campbell, SFI Stokes Lectureship, TCD

5 International Co-operation

SFI International Research Supplement

During 2007, SFI launched a Research Supplement to the SFI Principal Investigator programme to specifically encourage international collaborations between Irish scientists and their international peers in the strategic areas of ICT and BIO. The programme will operate as a bilateral exchange programme.

US/Ireland R&D Partnership Programme

During the year, SFI continued to play an active role in the ongoing planning process associated with the US/Ireland R&D Partnership Programme, which is a tripartite initiative involving the Governments of the United States, Northern Ireland and the Republic of Ireland. The aim of the partnership is to encourage and support research between the best and brightest to generate innovations to the marketplace and to lead to improvements in health promotion, disease prevention, healthcare and other technologies. The participating organisations are drawn from the US and both jurisdictions on the island of Ireland. The key areas of diabetes, cystic fibrosis and nano- and sensor-technology, will form the partnership's immediate work programme. In response to the programme, the SFI US-Ireland R&D Partnership Planning Grant was launched in autumn 2007.

No applications had been fully processed through to award stage by year end, but the first awards were made in the first quarter of 2008.

North/South Economic Cooperation

In response to the All Ireland Study on North/South Economic Cooperation, which was published in early 2007, SFI introduced a specific North/South Supplement, aimed at existing SFI grant holders, to encourage collaboration between Higher Education Institutions North and South of the border. Under the initiative, SFI will accept applications from existing SFI award holders (under the Principal Investigator, Research Professor, PIYRA, PICA, CSET and SRC Programmes) for supplementary awards to fund collaborative projects with scientists in HEIs in Northern Ireland.



Dr. Thomas Ritter,
REMEDI, NUIG

With more than 60,000 procedures a year, cornea transplantation is the most frequent human transplantation procedure. Although current immunosuppressive treatments have significantly improved the success rates of corneal transplants, rejection of the transplanted tissue is still common. Immune cells of the transplant recipient are critically involved in this rejection process. Basic research is needed to improve our knowledge of the mechanisms involved in the rejection of allogeneic transplants in order to develop novel therapeutic strategies. The ultimate goal of transplantation research is to achieve life-long acceptance of an allogeneic graft with a short-term immunomodulatory therapy only. In this SFI funded project, gene therapeutic approaches by using recombinant virus vectors expressing immunomodulatory proteins or cell-based therapies with in vitro generated regulatory cells will be investigated to protect the graft from rejection. The results are expected to identify novel short-term therapeutic approaches which may lead to permanent acceptance of corneal transplants and which may be of value for other transplant models as well. This research will support Ireland's development as a knowledge-based economy in the strategic area of biotechnology.

Statutory and Other Notices

1 Board Members – Register of Interests

The Board operates to the best practice corporate governance principles and in accordance with the guidelines set out in the Code of Practice for the Governance of State Bodies, as issued by the Department of Finance, both in its activities and in its use of committees. In accordance with these guidelines, SFI Board Members register their interests in other undertakings with the Secretary.

2 Ethics in Public Office Acts, 1995 and Standards in Public Offices Act, 2001

SFI became subject to the Ethics in Public Office Acts 1995 and 2001 on the 1 January 2005. SFI has complied with the provisions of the Act.

3 Freedom of Information Act, 1997 and Freedom of Information (Amendment) Act, 2003.

SFI became a prescribed body under the Freedom of Information Act, 1997 from 31 May 2006. SFI complies fully with the Act. Requests for information under this Act should be addressed to the FOI Officer, SFI, Wilton Park House, Wilton Place, Dublin 2.

4 Prompt Payment of Accounts Act, 1997

SFI comes under the remit of the Prompt Payment of Accounts Act, 1997, which came into effect on 2 January 1998, and the European Communities (Late Payment in Commercial Transactions) Regulations, 2002, which came into effect on the on 7 August 2002.

The payment practices of SFI, as required by the Act, are reported on below for the year ended 31 December 2007. It is the policy of SFI to ensure that all invoices are paid promptly. Specific procedures are in place that enable it to track all invoices and ensure that payments are made before the due date. Invoices are registered daily and electronic payments are issued as required to ensure timely payments. There were no late payments during 2007.

5 Employment Equality Acts, 1998 and 2004

SFI wholeheartedly supports the principle of equal opportunities in employment. It opposes all forms of discrimination on the grounds of colour, race, nationality, sexual orientation, ethnic or national origin (and/or area of origin), religion, gender, marital status, age or disability. SFI's commitment to implementing equal opportunities is reflected in its policies, practices and procedures, e.g. recruitment, promotion, training, use of nondiscriminatory language in company documents and publications. The objective is to ensure that all staff are selected and treated only on the basis of their abilities, knowledge and qualifications.

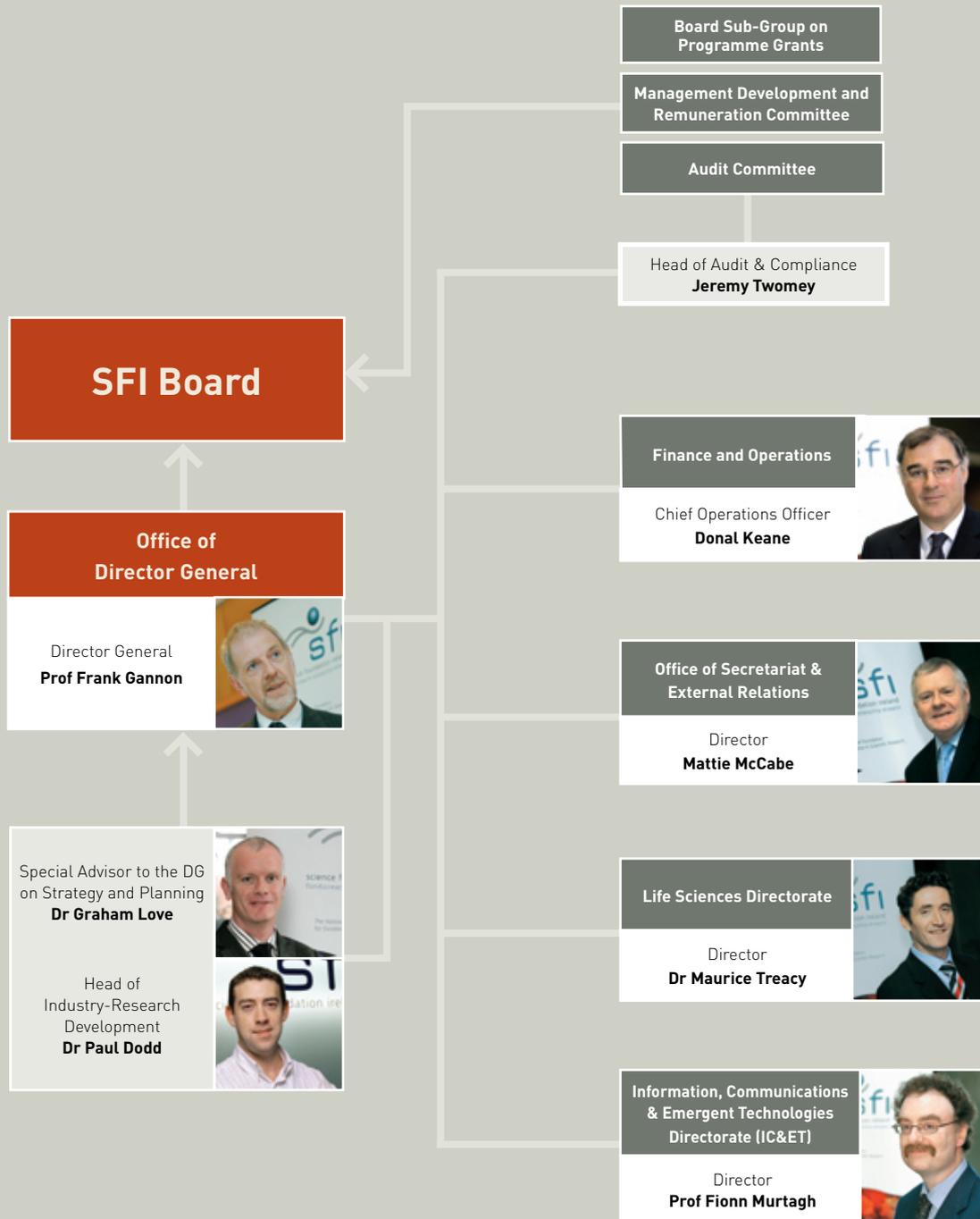
6 Safety, Health and Welfare at Work Act 1989

In accordance with the above Act, SFI in consultation with Forfás implements appropriate measures to protect the safety, health and welfare of all employees and visitors within its offices.

7 Clients' Charter

SFI has published a Clients' Charter setting out its commitment to a high quality of service. This Charter includes a procedure for dealing with complaints. In 2007, no complaints were received under the Charter.

ORGANISATIONAL STRUCTURE 2007



Note: Maurice Treacy resigned as Director of Life Sciences in March 2008.



Financial Statements **2007**

Science Foundation Ireland

Report of the Comptroller and Auditor General for presentation to the Houses of the Oireachtas

I have audited the financial statements of Science Foundation Ireland for the year ended 31 December 2007 under the Industrial Development (Science Foundation Ireland) Act 2003.

The financial statements, which have been prepared under the accounting policies set out therein, comprise the Accounting Policies, the Income and Expenditure Account, the Balance Sheet, the Cash Flow Statement and the related notes.

Respective Responsibilities of the Board and the Comptroller and Auditor General

Science Foundation Ireland is responsible for preparing the financial statements in accordance with the Industrial Development (Science Foundation Ireland) Act 2003 and for ensuring the regularity of transactions. It prepares the financial statements in accordance with Generally Accepted Accounting Practice in Ireland. The accounting responsibilities of the Members of the Board are set out in the Statement of Board Members' Responsibilities.

My responsibility is to audit the financial statements in accordance with relevant legal and regulatory requirements and International Standards on Auditing (UK and Ireland).

I report my opinion as to whether the financial statements give a true and fair view in accordance with Generally Accepted Accounting Practice in Ireland. I also report whether in my opinion proper books of account have been kept. In addition, I state whether the financial statements are in agreement with the books of account.

I report any material instance where moneys have not been applied for the purposes intended or where the transactions do not conform to the authorities governing them.

I also report if I have not obtained all the information and explanations necessary for the purposes of my audit.

I review whether the Statement on Internal Financial Control reflects Science Foundation Ireland's compliance with the Code of Practice for the Governance of State Bodies and report any material instance where it does not do so, or if the statement is misleading or inconsistent with other information of which I am aware from my audit of the financial statements. I am not required to consider whether the Statement on Internal Financial Control covers all financial risks and controls, or to form an opinion on the effectiveness of the risk and control procedures.

I read other information contained in the Annual Report, and consider whether it is consistent with the audited financial statements. I consider the implications for my report if I become aware of any apparent misstatements or material inconsistencies with the financial statements.

Basis of Audit Opinion

In the exercise of my function as Comptroller and Auditor General, I conducted my audit of the financial statements in accordance with International Standards on Auditing (UK and Ireland) issued by the Auditing Practices Board and by reference to the special considerations which attach to State bodies in relation to their management and operation. An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures and regularity of the financial transactions included in the financial statements. It also includes an assessment of the significant estimates and judgments made in the preparation of the financial statements, and of whether the accounting policies are appropriate to Science Foundation Ireland's circumstances, consistently applied and adequately disclosed.

I planned and performed my audit so as to obtain all the information and explanations that I considered necessary in order to provide me with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error. In forming my opinion I also evaluated the overall adequacy of the presentation of information in the financial statements.

Opinion

In my opinion, the financial statements give a true and fair view, in accordance with Generally Accepted Accounting Practice in Ireland, of the state of Science Foundation Ireland's affairs at 31 December 2007 and of its income and expenditure for the year then ended.

In my opinion, proper books of account have been kept by Science Foundation Ireland. The financial statements are in agreement with the books of account.



John Buckley
Comptroller and Auditor General

May 2008

Statement of Board Members' Responsibilities

For 2007 Annual Financial Statements

Section 24 (2) of the Industrial Development (Science Foundation Ireland) Act, 2003 requires Science Foundation Ireland to keep, in such form as may be approved by the Minister for Enterprise, Trade and Employment with the consent of the Minister for Finance, all proper and usual accounts of money received and expended by it and, in particular, to keep in such form as afore said all special accounts as the Minister may from time to time direct. In preparing those financial statements, Science Foundation Ireland is required to:

- select suitable accounting policies and apply them consistently;
- make judgements and estimates that are reasonable and prudent;
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that Science Foundation Ireland will continue in operation;
- disclose and explain any material departures from applicable Accounting Standards.

The Board is responsible for keeping proper books of account which disclose with reasonable accuracy at any time its financial position and which enables it to ensure that the financial statements comply with the overall requirements of Section 24 of the Industrial Development (Science Foundation Ireland) Act, 2003. These books of account are located at the Foundation's headquarters, Wilton Park House, Wilton Place, Dublin 2. The Board is also responsible for safeguarding its assets and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

On behalf of the Board:



Patrick Fottrell
Chairperson

Date: 9 May 2008



Frank Gannon
Director General

Date: 9 May 2008

Statement on Internal Financial Control

On behalf of the Board of Science Foundation Ireland I acknowledge our responsibility for ensuring that an effective system of internal financial control is maintained and operated.

The system can only provide reasonable and not absolute assurance that assets are safeguarded, transactions authorised and properly recorded, and that material errors or irregularities are either prevented or detected in a timely period.

The Board has taken steps to ensure an appropriate control environment is in place by:

- Clearly defining management responsibilities and powers;
- Establishing formal procedures for monitoring the activities and safeguarding the assets of the organisation;
- Developing a culture of accountability across all levels of the organisation.

The Board has established processes to identify and evaluate business risks by:

- Working closely with Government and various Agencies to ensure that there is a clear understanding of Science Foundation Ireland goals and support for the Agencies' strategies to achieve those goals.
- Requiring senior management to put in place risk assessment and risk management processes for the Audit Committee.

The system of internal financial control is based on a framework of regular management information, administration procedures including segregation of duties, and a system of delegation and accountability. In particular it includes:

- A comprehensive budgeting system with an annual budget which is reviewed and agreed by the Board;
- Regular reviews by the Board of periodic and annual financial reports which indicate financial performance against forecasts;
- Setting targets to measure financial and other performance;
- Formal project management disciplines.

Science Foundation Ireland has established an internal audit function, in accordance with the Framework Code of Best Practice set out in the Code of Practice on the Governance of State Bodies, which reports directly to the Audit Committee. The work of internal audit is informed by analysis of the risk to which the body is exposed and, in 2007, the internal audit plan was based on this analysis. The analysis of risk and the internal audit plans are endorsed by the Audit Committee. The Audit Committee meets at least six times a year and reviews the outcome of the specific internal audits and the ongoing adequacy and effectiveness of the system of internal financial control. The Board's monitoring and review of the effectiveness of the system of internal financial control is informed by the work of the internal auditor and the Audit Committee which oversees the work of the internal auditor and the control exercised by the executive managers within SFI who have responsibility for the development and maintenance of the financial control framework.

I confirm that the Board conducted a review of the effectiveness of the system of internal financial controls for 2007.

Signed on behalf of the Board



Patrick Fottrell
Chairperson

Accounting Policies

(1) Basis of Accounting

The Financial Statements have been prepared under the historical cost convention in the form approved by the Minister for Enterprise, Trade and Employment with the consent of the Minister for Finance under the Industrial Development (Science Foundation Ireland) Act 2003. The Financial Statements are prepared on an accruals basis, except where stated below and are in accordance with generally accepted accounting practice. Financial Reporting Standards, recommended by the Accounting Standards Board, are adopted as they become effective.

(2) Income Recognition

Income from Oireachtas Grant represents actual cash receipts in the year.

(3) Fixed Assets

Fixed Assets comprise tangible fixed assets that are owned by Science Foundation Ireland and included assets that were acquired prior to the establishment of SFI as an independent agency of Forfás on 25 July 2003. Fixed Assets are stated at cost less accumulated depreciation. Depreciation is calculated in order to write off the cost of fixed assets over their estimated useful lives (see Note 6).

(4) Capital Account

The Capital Account represents funds utilised for the acquisition of Fixed Assets and is written down in line with the depreciation policy for these assets.

(5) Foreign Currencies

Monetary assets and liabilities denominated in foreign currencies are translated at the exchange rates ruling at the Balance Sheet date. Revenues and costs are translated at the exchange rates ruling at the dates of the underlying transactions.

(6) Superannuation

Science Foundation Ireland is established as an agency of Forfás in accordance with Section 6 (1) of the Industrial Development (Science Foundation Ireland) Act, 2003. Staff employed at the Foundation are legally employees of Forfás and are seconded to the Foundation, consequently, under Sections 2 and 3 of the Second Schedule of the Industrial Development Act, 1993, Forfás is responsible for all employee pension entitlements. Forfás prepares and administers pension schemes for the granting of pension entitlements to its staff including staff seconded to Science Foundation Ireland. Forfás is also responsible for pension reporting requirements, including those set out under FRS 17.

(7) Operating Leases

The rentals under operating leases are accounted for as they fall due.

(8) Research Grant Payment

Amounts paid to Research Bodies on foot of research grants are charged to the Income and Expenditure account in the year of issue.

Income and Expenditure Account

For the year ended 31 December 2007

	Notes	2007 €'000	2006 €'000
Income			
Oireachtas Grant	1	164,066	147,570
Other	2	1,042	266
		165,108	147,836
Expenditure			
Pay	3	3,399	3,070
Administration Expenses	4	4,770	4,062
Depreciation	6	247	272
Grants	5	156,622	139,865
		165,038	147,269
Operating Surplus for Year		70	567
Contribution to the Exchequer	14	(900)	(1,048)
Net Surplus/(Deficit) for the Year		(830)	(481)
Balance at beginning of Year		65	438
Transfer from Capital Account	7	162	108
Accumulated (Deficit)/Surplus at end of Year		(603)	65

There are no recognised gains or losses, other than those dealt with in the Income and Expenditure Account.

The Accounting Policies, Cash Flow Statement and Notes 1 to 15 form part of these Financial Statements.

On behalf of the Board:



Patrick Fottrell
Chairperson

Date: 9 May 2008



Frank Gannon
Director General

Date: 9 May 2008

Balance Sheet

For the year ended 31 December 2007

	Notes	2007 €'000	2006 €'000
Fixed Assets			
Tangible Fixed Assets	6	137	299
Current Assets			
Cash at Bank		439	174
Accounts Receivable	8	62	93
		501	267
Accounts Payable	9	1,104	202
Net Current Assets		(603)	65
Net Assets/(Liabilities)		(466)	364
Represented By:			
Capital Account	7	137	299
Income and Expenditure Account		(603)	65
		(466)	364

The Accounting Policies, Cash Flow Statement and Notes 1 to 15 form part of these Financial Statements.

On behalf of the Board:



Patrick Fottrell
Chairperson

Date: 9 May 2008



Frank Gannon
Director General

Date: 9 May 2008

Cash Flow Statement

For the year ended 31 December 2007

	Notes	2007 €'000	2006 €'000
Reconciliation of (Deficit) for Year to Net Cash Flow from Operations			
(Deficit) for Year		(830)	(481)
Bank Interest	2	(142)	(96)
Depreciation Charge	6	247	272
Decrease/(Increase) in Accounts Receivable	8	31	(45)
Increase/(Decrease) in Accounts Payable	9	902	(286)
Net Cash Flow from Operations		208	(636)
Cash Flow Statement			
Net Cash Flow from Operations		208	(636)
Returns on Investment and Servicing of Finance			
- Bank Interest	2	142	96
Cash Flow before Capital Expenditure		350	(540)
Capital Funding			
- Receipts from Sale of Tangible Fixed Assets		-	-
- Purchase of Tangible Fixed Assets	6	(85)	(164)
Increase/(Decrease) in Cash		265	(704)
Reconciliation of Increase in Cash to Cash at Bank			
Movement in Cash for the Year		265	(704)
Cash at Bank at 01 January 2007		174	878
Cash at Bank at 31 December 2007		439	174

Notes to the Accounts

For the year ended 31 December 2007

	Notes	2007 €'000	2006 €'000
(1) Oireachtas Grant			
Pay		3,568	3,210
Administration and General Expenses		4,776	4,495
Research Grants		155,722	139,865
Total		164,066	147,570
<p>Under Section 35 of the Industrial Development (Science Foundation Ireland) Act, 2003, the aggregate amount of grants made by the Minister to Forfás and its Agencies, to enable them to discharge their obligations and liabilities shall not exceed €3,400,000,000. At 31 December, 2007 the aggregate amount so approved was €3,029,078,030.</p>			
(2) Other Income			
Bank Interest		142	96
Research Grant Refunded - (See Note 14)		900	170
Total		1,042	266
(3) Pay			
Pay Costs comprise:			
Wages and Salaries		3,148	2,857
Social Welfare Costs		241	183
Superannuation Costs		10	30
Total		3,399	3,070
SFI continued the process of filling sanctioned positions during the year.			
Sanctioned Positions		44	44
Full Time Employed (at year end)		37	36
Temporary Staff Employed (at year end)		6	3
Total		43	39

Notes to the Accounts (cont'd)

For the year ended 31 December 2007

	Notes	2007 €'000	2006 €'000
(4) Administration Expenses			
Board Members' Remuneration and Expenses		217	219
Programme Management		1,389	1,126
Facilities		816	622
Professional Fees		274	266
Marketing Promotion & PR		960	515
IT Support & Infrastructure		490	539
Travel & Subsistence Costs		164	166
HR Management		202	427
Office Furniture & Equipment		25	17
General Office Expenses		217	150
Audit Fee		16	15
Total		4,770	4,062

(5) Grants

Biotechnology Grants	60,010	56,712
Information and Communications Technology Grants	70,252	63,680
Research Frontiers Grants	26,360	19,473
Total	156,622	139,865

Grants are payable to Irish third level institutions to carry out world class basic research projects.

Grant Commitments

Outstanding Grant Commitments as at 01 January 2007	208,685
Grants Approved during the year	365,349
Decommitments during the year	(6,095)
Grant Payments made in the year	(156,622)
Outstanding Commitments as at 31 December 2007	411,317

Notes to the Accounts (cont'd)

For the year ended 31 December 2007

	Computer Equipment '000	Motor Vehicles '000	Fixtures & Fittings '000	System Development '000	Total '000
(6) Tangible Fixed Assets					
COST					
At 1 January 2007	444	50	165	383	1,042
Additions	63	-	22	-	85
Disposals	-	-	-	-	-
At 31 December 2007	507	50	187	383	1,127
DEPRECIATION					
At 1 January 2007	312	25	151	255	743
Charge for Year	100	13	6	128	247
Disposals	-	-	-	-	-
At 31 December 2007	412	38	157	383	990
NET BOOK AMOUNT					
At 1 January 2007	132	25	14	128	299
Net Movement for Year	(37)	(13)	16	(128)	(162)
At 31 December 2007	95	12	30	0	137

The cost of Tangible Fixed Assets is written off in equal instalments over their expected useful lives as follows:

- (i) Computer Equipment & Systems Development 3 years
- (ii) Motor Vehicles 4 years
- (iii) Fixtures & Fittings 5 years

Assets in course of construction are depreciated when commissioned.

Notes to the Accounts (cont'd)

For the year ended 31 December 2007

	2007 €'000	2006 €'000
(7) Capital Account		
At 1 January 2007		
Transfer from/(to) Income & Expenditure Account	299	407
- To fund Fixed Asset acquisitions	85	164
- Amortised in line with asset depreciation	(247)	(272)
Net Movement	(162)	(108)
At 31 December 2007	137	299
(8) Accounts Receivable		
General Debtors	15	13
Prepayments	47	80
Total	62	93
(9) Accounts Payable		
General Creditors	28	13
Accruals	152	150
Contribution to Exchequer	900	-
Interagency Balance	24	39
Total	1,104	202

Interagency Balance relates to the balance owed by Science Foundation Ireland to Forfás at 31 December 2007, being the difference between the amount of money paid to Forfás by Science Foundation Ireland and the actual money spent by Forfás on behalf of Science Foundation Ireland.

(10) Commitments under Operating Leases

Science Foundation Ireland currently has no commitments under operating leases on the building, but pays rent to Forfás as a contribution to the lease costs incurred by Forfás.

(11) Taxation

Section 227 of the Taxes Consolidation Act, 1997, exempts SFI from further taxation on Case IV and Case V rental income in excess of that deducted at source.

Notes to the Accounts (cont'd)

For the year ended 31 December 2007

(12) Board Members - Disclosure of Transactions

In the normal course of business, Science Foundation Ireland may enter into contractual arrangements with undertakings in which Science Foundation Ireland Board Members are employed or otherwise interested. Science Foundation Ireland has adopted procedures in accordance with the guidelines issued by the Department of Finance in relation to the disclosure of interests by Board Members and these procedures have been adhered to by Science Foundation Ireland during the year.

(13) Contingencies and Legal Actions

There are no contingencies or legal actions which require specific provision in the Financial Statements.

(14) Contribution to the Exchequer

In accordance with public finance procedure receipts in respect of grant refunds and surpluses on pay and administration activities, to the extent that they exceed the Foundation's expenditure requirements, are refundable to the Exchequer.

	2007	2006
	€'000	€'000
Research Grant Refunded	900	170
Refund of Oireachtas Grant	0	878
Total	900	1,048

(15) Approval of Financial Statements

The Financial Statements were approved by the Board of Science Foundation Ireland on 9 May 2008.



Grant Commitments and Payments Analysis **2007**

2007 Grant Commitments by Award Programme

	2007 €'000
SRCs	89,963
Investigators	74,094
Stokes Professorship and Lectureship Programme	57,860
Research Frontiers Programme	33,076
Equipment Supplement	31,201
Centres	27,810
CSETs	22,515
E-Journals	12,625
PIYRA	4,703
Maths Initiative	3,872
ETS Walton	2,114
Research Professor Recruitment Award	1,800
UREKA	1,750
AOIP	830
STAR Supplement	430
Conference & Workshop Awards	329
Industrial Supplement	297
SFI/Dell Scholarship	80
Total	365,349

**All amounts include overheads where applicable, figures referred to in the body of the report are direct cost only.*

2007 Grant Commitments by Institution

	2007 €'000
University College Dublin	76,238
Trinity College Dublin	74,617
Tyndall National Institute	51,420
University College Cork	46,455
Dublin City University	33,833
NUI Galway	31,801
NUI Maynooth	20,229
University of Limerick	14,954
Royal College of Surgeons in Ireland	5,294
Dublin Institute of Technology	5,221
Teagasc	1,755
Dublin Institute for Advanced Studies	813
Dundalk Institute of Technology	795
Institute of Technology Sligo	585
Institute of Technology Tallaght	585
Athlone Institute of Technology	463
Tralee Institute of Technology	193
Cork Institute of Technology	96
St. Patricks College	2
Total	365,349

**All amounts include overheads where applicable, figures referred to in the body of the report are direct cost only.*

2007 Grant Payments by Award Programme

	2007 €'000
Investigators	32,174
Equipment Supplement	31,201
Research Frontiers Programme	26,514
Centres	17,610
CSETs	16,341
SRCs	10,670
Research Professor Recruitment Award	5,234
E-Journals	5,219
PIYRA	2,336
ETS Walton	2,258
UREKA	1,726
PICA	1,186
Industrial Supplement	1,085
Math Initiative	840
AOIP	830
STAR Supplement	418
Stokes Professorship and Lectureship Programme	349
Conference & Workshop Awards	329
WISER	264
SFI/Dell Scholarship	38
Total	156,622

**All amounts include overheads where applicable, figures referred to in the body of the report are direct cost only.*

2007 Grant Payments By Institution

	2007 €'000
University College Dublin	35,730
Trinity College Dublin	31,125
Tyndall National Institute	26,239
University College Cork	18,815
Dublin City University	13,802
NUI Galway	11,713
University of Limerick	6,609
NUI Maynooth	5,778
Royal College of Surgeons	3,983
Waterford Institute of Technology	1,011
Dublin Institute of Technology	557
Dublin Institute of Advanced Studies	393
Athlone Institute of Technology	320
Cork Institute of Technology	194
Dundalk Institute of Technology	169
Tallaght Institute of Technology	115
Tralee Institute of Technology	67
St. Patrick's Drumcondra	2
Total	156,622

**All amounts include overheads where applicable, figures referred to in the body of the report are direct cost only.*

Learn more about SFI and our programmes at www.sfi.ie

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