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Building a World-Class Research-Intensive University

UCD is committed to becoming a leading European research-intensive university that drives innovation and creative discovery within its community of world-class researchers.

UCD continues to build its reputation as a destination of choice for leading researchers, providing an environment in which they can innovate and excel. UCD is also forging exciting educational and research partnerships and collaborations with academic, community, business and professional organisations, enhancing confidence in UCD as a destination for quality investment and making it a national leader in research funding.

The overall winner of the 2008 Images of Research Competition – entitled ‘Ray-zor Sharp Vision’ – shows the eye of a spotted ray and its intricately shaped iris. This adaptation makes the ray’s eye very sensitive to movements within a large visual field. Image was captured by PhD student Edward Farrell, UCD School of Biology and Environmental Science



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NovaUCD

Research publications

Details of all research publications for the period of the Report are available online at

www.ucd.ie/research/publications

Research Funding

UCD has had an extremely successful year. Contracts awarded exceeded €100 million for the first time, with the total value up 19% to €114.7 million (see Tables 1 and 2). Central to this performance has been the number of large collaborative awards under SFI's Centres for Science, Engineering and Technology (CSET) and Strategic Research Clusters (SRCs). These multidisciplinary awards create academic–industry partnerships in several areas, including computer science, solar energy, drug development and nanobiology.

Included in this €114.7 million funding is €3.4 million in respect of PRTL 4-funded projects. In total, UCD was awarded €29.8 million under PRTL 4, representing €17.5 million for the first phase of the Science Centre development and €12.3 million for national collaborative programmes. UCD also entered into a partnership agreement with the board of the City of Dublin Skin and Cancer Hospital that resulted in €12 million external funding for the development of the Charles Institute.

Table 1: Research Awards

Year	Total Value Contracts Signed incl. Contributions to Overheads (€ million)	Total Contributions to Overheads (€ million)	Total Number of Contracts Awarded	Number of Proposals Submitted
2003/2004	49.8	5.6	405	685
2004/2005	62.5	8.1	495	1,074
2005/2006	82.9	11.8	664	1,245
2006/2007	96.3	14.8	556	1,234
2007/2008	114.7	17.3	484	1,090

Table 2: Funding Sources

Funding Source	Number of Contracts	Value (€ million)
Science Foundation Ireland (SFI)	150	56.3
Department of Agriculture, Fisheries and Food	28	11.2
Environmental Protection Agency	25	4.7
European Commission	24	5.7
Higher Education Authority incl. PRTL	23	4.9
Health Research Board	16	6.4
Enterprise Ireland	31	2.9
Irish Research Council for Science, Engineering and Technology (IRCSET)	52	7.1
Irish Research Council for Humanities and Social Sciences (IRCHSS)	22	5.2
National Council for Forest Research and Development (COFORD)	4	2.2
Business	20	2.3
Others	89	5.8
Total	484	114.7

Internal Schemes in Support of Research

UCD Seed Funding Scheme

Now in its fourth year, the Seed Funding Scheme aims to provide funding to researchers at all stages of their careers, with particular emphasis on projects that may be competitive for subsequent external support. A total of €1.1 million was awarded in 2007/08 for the Seed Funding Scheme, with 42% of 762 applications funded (see Table 3).

A new strand of the Dissemination and Outputs scheme, 'Hosting a Conference', opened Round 1 in 2008 in to all permanent research staff from lecturer to professorial level. Funding is available to support the hosting of a conference or other significant forum at UCD. This new strand was developed to promote collaboration and to provide a forum for debate and discussion. Applications were received from 26 researchers for the new strand, and seven were funded.

Table 3: Seed Funding Scheme

ROUND 2 2007

Programme	No. of Awards	Amount Awarded €
Dissemination & Outputs	58	99,917
Enterprise & Commercialisation	4	25,000
TOTAL	62	124,917

ROUND 1 2008

Programme	No. of Awards	Amount Awarded €
Dissemination & Outputs	122	151,095
Dissemination & Outputs - Hosting a Conference	7	50,175
Internal & External Collaboration	33	299,918
Horizon Scanning	31	243,206
Small Equipment Award	18	192,190
Enterprise & Commercialisation	3	25,019
Total	214	961,603

ROUND 1 (SECOND CALL) 2008

Programme	No. of Awards	Amount Awarded €
Dissemination & Outputs - Conference Participation Only	48	49,775
Total	48	49,775

UCD President's Research Fellowship Scheme

The President's Research Fellowship Scheme offers researchers in UCD the opportunity to explore new research ideas or to visit other centres for a short period. Eighteen researchers applied for the prestigious award in 2008 and successful applicants are shown in Table 4.

Table 4: President's Research Fellowship Awards

Name	School
Professor Maria Baghramian	UCD School of Philosophy
Professor Orla Feely	UCD School of Electrical, Electronic and Mechanical Engineering
Professor Declan Gilheany	UCD School of Chemistry and Chemical Biology
Professor Tom Inglis	UCD School of Sociology
Professor Attracta Ingram	UCD School of Politics and International Relations
Professor Jonathan Malthouse	UCD School of Biomolecular and Biomedical Science
Professor Aidan Moran	UCD School of Psychology

UCD scientists discover a potential treatment for IBD

UCD scientists have discovered a potential therapeutic approach to Inflammatory Bowel Disease (IBD), a chronic debilitating disease which affects more than 15,000 people in Ireland and millions of people worldwide. Published in the journal *Gastroenterology*, the team has demonstrated that it can almost completely reverse signs of the disease in a model using a new class of drugs known as hydroxylase inhibitors. Professor Cormac Taylor, UCD Conway Institute, explained that when the new drugs were applied, the gut was tricked into thinking it was being deprived of oxygen and this activated protective pathways, which in turn prevented the death of the cells lining the gastrointestinal tract.

UCD Strategic and Major Awards

The Strategic and Major Initiatives Scheme provides support for the development of major inter-disciplinary programmes that advance the strategy for research in UCD. Table 5 lists the strategic and major initiatives approved in 2008.

Table 5: Strategic and Major Initiatives Approved

Unit	Total	Leader	Purpose
UCD School of Biomolecular and Biomedical Science	€26,000	William Gallagher	Imaging in the Life Sciences
UCD School of Biology and Environmental Science	€50,000	Jeremy Simpson	High-throughput screening facility
UCD Research	€50,000	Des Fitzgerald	Charles Institute for Dermatology Research and Education
UCD School of Public Health and Population Science	€25,000	Richard Tremblay	Childhood Development Programme
UCD School of Business (NITM)	€50,000	Petra Arhweiler	Innovation Networks Research Centre

IUPAC International Young Chemists of the Year

In June 2008, Dr Emilie Banide, a recent PhD graduate from the CSCB and the UCD School of Chemistry and Chemical Biology, was selected by the International Union of Pure and Applied Chemistry (IUPAC) as one of its five International Young Chemists of the Year (2008), based on the quality of her PhD thesis and the resulting publications.

Earlier in the year, Dr Banide was awarded the Prize for Young Chemists (2007), sponsored by *The Irish Times* and selected by a committee of the Royal Irish Academy. Her thesis was selected as the best chemistry PhD thesis in Ireland and she became Ireland's candidate for the IUPAC prize.



Dr Emilie Banide, CSCB and UCD School of Chemistry and Chemical Biology

Research Awards and Honours

Graduate Research Education Programmes

UCD achieved outstanding results in the Graduate Research Education Programmes, funded by the Irish Research Council for the Humanities and Social Sciences (IRCHSS) and the Irish Research Council for Science, Engineering and Technology (IRCSET), leading four of the five programmes awarded. The Graduate Research Education Programme brings together groups of senior academics focused on a specific theme to provide a more formalised and structured approach to research education and career formation for doctoral and master's scholars. The awardees were:

- Professor Paul Devereux, Professor of Economics and Geary Research Fellow, leads the Graduate Programme for the Quantitative Social Sciences along with Professor Patrick Paul Walsh;
- Professor Eugene O'Brien, former Director, Urban Institute Ireland, leads the PhD programme in Sustainable Development. The programme is organised into inter-disciplinary groups embracing planning, environmental policy, engineering, energy and ecology;
- Professor Gerardine Meaney, Professor of Cultural Theory, UCD School of English, Drama and Film, leads the graduate programme in Gender, Culture and History;
- Professor Denis Shields, Professor of Clinical Bioinformatics from the UCD Conway Institute, leads the PhD programme in Bioinformatics and Computational Biomedicine.

Pictured at the announcement of the GREP funding awards were (from left): Prof. Eugene O'Brien, Urban Institute Ireland; Prof. Denis Shields, UCD Conway Institute; Prof. Gerardine Meaney, UCD School of English, Drama and Film; and Prof. Paul Devereux, Geary Research Fellow



Marine Functional Food Programme

The Marine Functional Food Research Initiative (MFFRI) received funding of €5.2 million to create a multidisciplinary research consortium, involving researchers from the UCD School of Agriculture, Food Science and Veterinary Medicine. The MFFRI comprises researchers from UCD, UCC, NUI Galway, University of Limerick, University of Ulster – Coleraine and Teagasc. The consortium will identify novel marine-food ingredients and products, and so sustain Ireland's leading position in the €50 billion worldwide market for functional foods.

Commercialisation Award for Professor Regan

Professor Ciaran Regan won the inaugural Enterprise Ireland Life Science and Food Commercialisation Award. Professor Regan, Professor of Neuropharmacology at the UCD School of Biomolecular and Biomedical Science and co-ordinator of the Applied Neurotherapeutics Research Group, is a named inventor on six UCD patents. In 2004, he co-founded a successful UCD spin-out company called Berand Neuropharmacology, which develops novel therapeutics for the treatment of autism and obesity.

UCD professor awarded RIA gold medal

Professor George Eogan, emeritus Professor of Celtic Archaeology at UCD, widely regarded as one of Ireland's foremost archaeologists, was awarded the Royal Irish Academy Gold Medal in the Humanities. His programme of archaeological work in the Boyne Valley over the past 40 years has contributed to its establishment as a national park and designation as a World Heritage Site by UNESCO. Each year, RIA Gold Medals are presented to two outstanding academics. They are recognised as a truly national expression of celebration for scholarly achievement.

Strategic Achievements

SFI Stokes Programme

The SFI Stokes Professorship and Lectureship Programme was established in 2007 to support the strategic recruitment of key research personnel at multiple levels, thereby enabling Schools and Institutes to integrate quality research staff to their existing pool of expertise. The 2007 SFI Stokes call funded a total of 32 professorships (each worth €180,000 per annum) and 35 lectureships (each worth €90,000 per annum) for the duration of the award. UCD received nine Stokes professorships and seven lectureships (see Table 6), worth a total of €11.3 million.

Table 6: SFI Stokes Programme Awards

Candidate	Award	School/Institute
Emmanuel Reynaud	Lectureship	UCD School of Biology and Environmental Science
Pending	Professorship	UCD School of Physics
Brian Vohnsen	Lectureship	UCD School of Physics
Pending	Lectureship	UCD Conway Institute
Pending	Professorship	UCD Conway Institute
Pending	Professorship	UCD Conway Institute
Matthias Wilm	Professorship	UCD Conway Institute
Andrew Phillips	Lectureship	UCD School of Chemistry and Chemical Biology
Gil Lee	Professorship	UCD School of Chemistry and Chemical Biology
Johan Ericsson	Professorship	UCD School of Chemistry and Chemical Biology
Ulla Knaus	Professorship	UCD School of Medicine and Medical Science
Neil Ferguson	Lectureship	UCD School of Biomolecular and Biomedical Science
Anna Roujeinikova	Lectureship	UCD School of Biomolecular and Biomedical Science
Jaoo Marques Silva	Professorship	UCD CASL
Nigel Boston	Professorship	UCD CASL/School of Mathematics and Mathematical Science
Mark Flanagan	Lectureship	UCD CASL/School of Computer Science and Informatics

CLARITY Centre for Science Engineering & Technology (CSET)

The CLARITY Centre for Sensor Web Technologies (www.clarity-centre.org) is an initiative between UCD and DCU, supported by researchers at the Tyndall National Institute, Cork. The centre is funded as a CSET by SFI and involves indigenous and multinational industry partners. It focuses on the so-called 'Sensor Web', which captures the intersection between two important research areas – Adaptive Sensing and Information Discovery. Total investment in CLARITY amounts to €16.4 million over five years. CLARITY will host approximately 80 research and support staff – active recruitment of research and administrative staff is currently under way.

CLARITY achievements

- CLARITY researchers in DCU and UCD have secured additional funding of €900,000 from Enterprise Ireland and the EPA;
- CLARITY Researchers (Maurice Coyle, Jill Freyne and Barry Smyth) were awarded Best Paper Award at this year's International Conference on Adaptive Hypermedia and Adaptive Web-Based Systems (Hannover, Germany) for their work on personalising the popular YouTube video-sharing site;
- CLARITY researchers (Maurice Coyle, Peter Briggs and Barry Smyth) established HeyStaks Technologies Ltd to commercialise the social search technology. The company will be based

in NovaUCD and is one of four new initiatives to share the Eircom €100,000 Web Innovation Fund;

Pictured (from left) are HeyStaks co-founders Dr Maurice Coyle, Prof. Barry Smyth and Peter Briggs



- CLARITY welcomed two visiting academics: Professor Robin Burke (DePaul University in Chicago) who joins the team for one year on a Fulbright Scholarship; and Dr Pierre-Antoine Champin (University Claude Bernard Lyon 1, France) whose visit is funded by the French National Centre for Scientific Research.

Strategic Research Clusters

The Strategic Research Cluster (SRCs) programme funds academic–industry partnerships that aim to harness the expertise of scientists across a spectrum of disciplines. UCD was awarded 4 of 12 SRCs funded nationally (see Table 7). SRCs help link scientists, engineers and clinicians in partnerships across academia and industry to carry out joint research activities in areas of strategic importance to Ireland, while also giving those clusters the time and resources to attract and cultivate further industry partnerships.

Table 7A: SFI Strategic Research Clusters (SRCs) awarded to UCD

Strategic Research Clusters - UCD Lead Institution

Full Title	Total Award (€)	Amount Awarded to UCD (€) over 3 years	School	UCD Lead PI	Partners Institutions	Industry Partners
Advanced Biomimetics for Solar Energy Conversion	4,742,366	2,495,814	UCD School of Chemical and Bioprocess Engineering	Prof. Don MacElroy	UL DCU	Airtricity, Celtic Catalysts, STREP
BioNanoInteract	7,241,740	2,864,521	UCD School of Chemistry and Chemical Biology	Prof. Kenneth Dawson	TCD UCC NUIM UL, UU	Intel, Biotrin, Cellix, Glantreo, Thermofisher DePuy
Irish Drug Delivery Research Network (IDDN)	5,278,749	947,389	UCD School of Agriculture, Food Science and Veterinary Medicine	Prof. David Brayden	TCD UCC RCSI	Genzyme, Sigmoid, WEP
Reproductive Delivery Research Network (IDDN)	7,410,200	4,557,922	UCD School of Agriculture, Food Science and Veterinary Medicine	Prof. Alex Evans	Teagasc	Pfizer Animal Healthcare, Biotrin

Note: The figures in the table above exclude overheads and industry contributions.

Table 7B: SFI Strategic Research Clusters (SRCs) awarded to UCD**Strategic Research Clusters – UCD Partner Institution**

Full Title	Total Award Value (€)	Amount Awarded to UCD (€) over 3 years	School	UCD Co PI	Lead Institution
Efficient Embedded Digital Signal Processors for Mobile Digital	3,978,541	289,018	UCD School of Computer Science and Informatics Health	Dr Chris Bleakley	University College Cork
Solid State Pharmaceuticals Cluster	6,971,997	877,319	UCD School of Chemical and Bioprocess Engineering	Prof. Brian Glennon	University of Limerick
Advanced Geotechnologies	7,024,583	265,659	UCD Computer Science and Informatics	Dr Michela Bertolotto	NUI Maynooth
Network of Excellence for Functional Biomaterials (NFB)	4,347,426	380,171	UCD Biomolecular and Biomedical Science	Prof. William Evans	NUI Galway

Note: The figures in the table above exclude overheads and industry contributions.



Runner-up in the 2008 Images of Research Competition – 'Cube Turbulence' was created by Owen Grogan, UCD School of Architecture, Landscape and Civil Engineering

Toxic key to Alzheimer's identified

UCD researchers are among the co-authors of a report which has unlocked the cascade of molecular events that lead to Alzheimer's disease. The findings, published in *Nature Medicine* (22 June 2008), suggest a potential new target for the development of drug therapies to fight the irreversible and degenerative disease. Alzheimer's disease affects more than 40,000 people in Ireland and some 29.8 million people worldwide. Professor Dominic Walsh, UCD Conway Institute, and co-author of the paper, explained that the findings support the growing theory that Alzheimer's disease memory deficits may result from loss of dendritic spines and that this process is mediated by amyloid β -protein (A β) oligomers, not monomer or plaque A β as previously considered.

Research News and Achievements

Pictured at the European Centre for Atomic Molecular Calculations (CECAM) site visit (from left): Prof. Claude Guet (CECAM Taskforce); Prof. Giovanni Ciccotti (CECAM Taskforce); Prof. Nick Quirke (Principal, College of Engineering, Mathematical and Physical Sciences); Minister Mary Hanafin, TD; Prof. Des Fitzgerald (Vice-President for Research); and Prof. Eberhard Gross (CECAM Taskforce)

Best Student Paper Award

Amaya Vega, a PhD student in the UCD School of Economics, won the prestigious Best Student Paper Award at the North American Regional Science Congress. Vega's paper, which is drawn from her PhD thesis, is entitled *Residential Location and Travel-to-Work Mode Choices under Central and Suburban Employment Destination Patterns*. Funding to attend the Congress was provided by the UCD Seed Funding Scheme.

Commercialisation Award

Professor Gerry Byrne and Eamonn Ahearne have been presented with a Commercialisation Award by Enterprise Ireland (EI) for their innovative advancement of water-pumping technology. Their research into the development of a proprietary process technology at the UCD Advanced Manufacturing Science Centre is now licensed to the ABS Group in Wexford. The research, which was funded under the EI commercialisation scheme, came up with a process for improving the performance of ABS pumping systems. This project is recognised by EI and the ABS Group as an excellent example of industry-academia collaboration.

UCD hosts CECAM node

Ireland's quest to become a centre for computational research was taken one step further with the announcement that one of the six European 'nodes' for atomistic and molecular computations will be based in Ireland. For three decades, CECAM – the European Centre for Atomic Molecular Calculations – has played a pivotal role in advancing the modelling of atomic molecular phenomena. This research has led to numerous scientific breakthroughs and has helped to establish the field of computational modelling as a critical tool for discovery. The UCD-led Ireland bid was ranked third out of 12 bids from leading European universities following a site visit to UCD by a taskforce representing the CECAM Council in January 2008.



UCD paper wins PNAS Prize

The Proceedings of the National Academy of Sciences (PNAS) announced a UCD-led paper, *Understanding the Nanoparticle-protein Corona Using Methods to Quantify Exchange Rates and Affinities of Proteins for Nanoparticles*, as its 2007 Cozzarelli Prize winner. The winning paper was chosen from more than 3,600 research articles published by PNAS in 2007, and the Cozzarelli Prize acknowledges papers that reflect exceptional contributions to the scientific disciplines represented by the National Academy of Sciences of the United States.

UCD professor receives UWIG award

Professor of Electrical Engineering Mark O'Malley has been honoured by the Utility Wind Integration Group (UWIG) as a recipient of the group's Annual Achievement Award. Professor O'Malley received the award in recognition of impressive input and leadership in the production of the 'All-Island Grid Study for Renewables Integration' project. The All-Island Grid Study is a comprehensive technical-research project on the ability of the electrical power system and the national grid to absorb large amounts of electricity produced from renewable sources.

UCD RoboRugby competition

Innovative engineering and computer science students unleashed 21 robots for the final of the Siemens RoboRugby competition that took place in May 2007 in UCD. This was the fourth year of the event with 62 students taking part in the competition, which aims to make engineering fun while also developing the students' lateral thinking

and ingenuity skills. Brian Mulkeen, UCD School of Electrical, Electronic and Mechanical Engineering, believes the best way to develop engineering and problem-solving skills is through practical design.

World ranking for UCD professor

Professor Da-Wen Sun, UCD School of Agriculture, Food Science and Veterinary Medicine, has been ranked amongst the top 1% of agricultural scientists from around the world, according to the Essential Science Indicators (ESI) database. The ESI database from Thomson Scientific provides data for ranking individual scientists, institutions, countries and journals. According to the data derived over a period of 10 years, a total of 2,127 scientists are among the top 1% of the most-cited scientists in the category of Agriculture Sciences, and Professor Sun is at the top of the list with his ranking of 51.

Best Student Paper at FoodSim2008

Ilias Soumpasis, a researcher at the UCD School of Agriculture, Food Science and Veterinary Medicine, has received the award for Best Student Paper at the Biannual International Food and Nutrition Simulation Conference, FoodSim 2008. The aim of the work presented by Soumpasis and his supervisor, Professor Francis Butler, was to show an alternative method of simulating the propagation of the salmonella pathogen at the farm level, which more accurately predicts how salmonella develops on pig farms, compared to existing models.

Researcher Profiles system launched

The Researcher Profiles system has been made available by UCD Research right across the university. The profiles provide a means of showcasing the research achievements of academic and research staff in UCD to a global



Pictured at the FoodSim2008 conference (from left): Dr Enda Cummins, UCD School of Agriculture, Food Science and Veterinary Medicine; Ilias Soumpasis, UCD School of Agriculture, Food Science and Veterinary Medicine; and Dr Graeme Horley, Scientific Programme Officer, SFI

community. The Researcher Profiles system, which was designed by the research community for the research community, has been widely adopted and incorporated into School and Institute websites throughout UCD. There are now over 1,200 academic staff profiles available (www.ucd.ie/research/people).

UCD researcher helps identify initial HIV treatment

The New England Journal of Medicine has published the results of a major clinical study to evaluate commonly used HIV treatment regimes for patients starting therapy for the first time. The study has confirmed that one of the most frequently prescribed triple-drug combinations for initial HIV-1 infection is the most effective at suppressing HIV. The study also found that a two-drug regimen performed comparably for patients susceptible to severe side effects from nucleoside reverse transcriptase inhibitors (NRTIs) that form part of the three-drug regimen. Professor Bill Powderly, Head of the UCD School of Medicine and Medical Science, commented that even when various treatments become available on the market, it is extremely important to study their relative effectiveness and their side effects.

First-year engineering and computer science students gear up for the RoboRugby challenge



UCD Conway Institute for Biomolecular and Biomedical Research

The research programme at the UCD Conway Institute of Biomolecular and Biomedical Research focuses on biological molecules, examining how individual molecules contribute to the normal operation of human cells and organs, and how this is disrupted by disease. The Director of the Institute is Professor Janet Allen.

A total of €37 million in peer-reviewed grant income was awarded to UCD Conway Institute for Biomolecular and Biomedical Research investigators during the year. In particular, UCD Conway investigators were successful in securing SFI funding to upgrade the core technologies of the Institute. The core technologies provide investigators with access to world-class equipment and technical support. The improvements funded by SFI grants during the year included:

- Further development of the mass spectrometry resource;
- Establishment of the Illumina next-generation genomics sequencing platform;
- Spinning disc confocal microscope for live-cell imaging;
- PET/SPECT/CT imaging platform for small animals;
- High-voltage transmission electron microscope with tomography.

Progress to date

Some 51 PhD, six MD and four MSc thesis submissions were made by postgraduate students supervised by UCD Conway Institute investigators and a total of 279 peer-reviewed papers were published by UCD Conway Institute investigators during the period. SFI awarded two Stokes Professorships and one Stokes Lectureship in the area of Systems Biology to the UCD Conway Institute (totalling €3.15 million). In addition, the UCD Conway Institute secured funds from the HEA Infrastructure grant (€1.2 million) to support the redevelopment of the UCD Biomedical Facility.

The Institute's Proteomic Research Centre hosted the First Irish Proteomics Research Day in April 2008, under the auspices of the British Society for Proteomic Research.

With funding under the Higher Education Authority's PRTLI Cycle 4 for the Biomedical Sciences Network Programme, the UCD Conway Institute has participated in the innovative Clinical Scientist Fellowship programme managed through Molecular Medicine Ireland (MMI). This is the first national programme involving all five Irish medical schools and provides specialised PhD training opportunities for qualified medical doctors to embark on biomedical research. The UCD Conway Institute is host to three of these research fellows. The UCD Conway Institute continues to support education in the area of Translational Sciences

and hosted a course for MMI on Techniques and Strategies in Molecular Medicine.

The UCD Conway Institute is a Marie Curie Training Site for Molecular Neuroimmunology. This programme has attracted postgraduate students from across the EU to UCD. In March 2008, its First European Symposium on Neuroimmunology attracted over 250 participants from around the world to participate in scientific debate.

The 7th Annual Conway Festival of Research was held on 20 September 2007, showcasing the research achievements of the Institute. Some 120 abstracts were presented by UCD Conway Institute researchers in O'Reilly Hall, and over 300 people attended the event. Three distinguished speakers from the international research community were invited to deliver plenary lectures: Professor Peter Dervan, California Institute of Technology; Professor Kim Nasmyth, University of Oxford; and Professor Steve Jones, University College London.

In December 2007, Merck Sharp & Dohme Ireland (Human Health) announced its year-long sponsorship of the Conway Lecture and Seminar Series (CLASS). This industry-academic collaboration has ensured the continuation of the weekly seminars which attract researchers of international renown to address UCD Conway investigators and graduate students.

In October 2007, Professors Oliver Fitzgerald and Pauline Rudd (UCD Conway Institute and NIBRT) hosted the 8th Jenner Symposium, *Glycobiology*

and Medicine, under the auspices of the Royal Society of Medicine. The UCD Conway Institute also hosted an international workshop on Social Epigenetics, organised by Professor Richard Tremblay in March 2008. Also in March, Professor Philip Newsholme hosted a Biochemical Society meeting. The UCD Diabetes Research Centre hosted a symposium on Diabetic Nephropathy in June, which attracted over 150 international delegates.

Future objectives

The UCD Conway Institute will continue to build critical mass in the area of Systems Biology through academic and infrastructure developments. Incoming SFI Stokes Professors Ulla Knaus and Johan Ericsson will join the Institute in the autumn of 2008. The Institute will continue to foster translational medicine through the Charles Institute, which is in the advanced stages of planning.

New test may help avoid chemotherapy

Scientists at the UCD Conway Institute and St Vincent's University Hospital have developed a test for newly diagnosed breast cancer patients that could help some women avoid chemotherapy. The findings have been tested and validated by a number of independent groups worldwide in studies involving in excess of 8,000 patients. The American Society of Clinical Oncology has now recommended the test as standard for all newly diagnosed breast cancer patients. Professor Joe Duffy, UCD Conway Institute and St Vincent's University Hospital, explained that this new enzyme test could help to offer a more tailored solution for patients.



Members of the CLASS committee, together with representatives of Merck, Sharp & Dohme (MSD) Ireland and Professor Leroi of Imperial College London, who gave the first of the MSD sponsored lectures. Pictured (from left): Tim Sparey, Merck Sharp & Dohme; Prof. Janet Allen, UCD Conway Institute; Dr Keith Murphy, UCD Conway Institute; Dr Derek Brazil, UCD Conway Institute; Prof. Armand Leroi, Imperial College London; Dr Neil Boyle, Merck Sharp & Dohme; Dr Orina Belton, UCD Conway Institute; and Dr Peter Smyth, UCD Conway Institute



Winner of AccesScience '08, Billy Fleming, with host Pat Kenny

UCD Geary Institute

The UCD Geary Institute conducts leading-edge research on life-course issues and the way public policy affects areas such as early childhood outcomes, youth inequalities, retirement behaviour and educational choices. The hallmark of the Institute is its cross-disciplinary research that examines effective solutions to economic, political, epidemiological and social questions. The Institute's Director is Professor Colm Harmon.

The Institute's vision is to:

- Support frontier methods of investigation, leading to the very best in research publications;
- Enhance the international profile and ranking of its researchers;
- Play a central role in the training of the next generation of researchers by maximising opportunities for graduate students to work alongside senior researchers on live projects;
- Provide objective analysis and effective solutions that address the challenges facing policy-makers.

Progress to date

Peer-reviewed publications are a primary focus for the Institute and researchers' publications appeared in *Journal of Applied Econometrics*, *Journal of Business and Economics Statistics*, *Economic Inquiry* and *British Journal of Political Science*, among others.

The weekly Behavioural Seminar series continued, with a vibrant programme of papers delivered by national and international speakers. The Qualitative Research Methods Seminar series, which comprises invited speakers, master classes and workshops, was launched by the Centre for Behaviour and Health. In addition, several major events were held, including conferences on higher education, health economics and interdisciplinary health research.

The Institute launched the Dynamics Lab to support research and training in the fields of Social Network Analysis, Group Social Processes and the Computational Social Sciences and to assist collaboration between researchers in the analysis of dynamic and complex behaviour in social networks and group processes.

The UCD Geary Institute is collaborating with Dundalk Institute of Technology to examine health-risk behaviours, in particular, risky-driving behaviours. Collaborative projects with clinical hospital groups were developed in partnership with the Mater Misericordiae University Hospital and St Vincent's University Hospital. Close engagement continued with international research partners, which include RAND Corporation, Harvard Kennedy School of Government and University of Chicago: Harris School of Public Policy.

Work on the evaluation of the first experimental social policy programme in Ireland, *Preparing for Life*, is under way in the Dublin communities of Darndale, Moatview and Belcamp. Recruitment into the programme began in January 2008 and expectant mothers in these communities continue to be recruited through the maternity hospitals in the community.

Fieldwork was completed on SHARE – the Survey of Health, Ageing and Retirement in Europe – and the Irish component of this longitudinal study of the over-50s was launched on 20 October 2007.

The September 2008 rankings from the Research Papers in Economics database (RePEc) ranked the UCD Geary Institute 47th globally and 13th in Europe amongst university-based centres. This places UCD Geary within the top 1% of all institutions globally.

Individual academics associated with the Institute also were also ranked highly by RePEc. UCD academics Professors Paul Devereux, Colm Harmon, James Heckman, Karl Whelan, Ronald Davies and James Markusen were ranked in the top European 10% aggregated across all ranking measurements. External fellows affiliated to UCD who featured in the European top 10% were Adjunct Professor of Health Economics at UCD, Dr James Smith (RAND), Professor Ian Walker (Warwick) and Dr Arnaud Chevalier (Royal Holloway).

Contracts signed for external research in 2007/08 totalled in excess of €1 million. The Irish Universities Study (IUS), a web-based survey examining the third- and fourth-level student population in the seven Irish universities, was launched in April 2008. The first round of the study was completed in May and findings have been presented at several academic and policy events.

Future objectives

UCD Geary Institute will build on these achievements, with particular emphasis on the following for 2009:

- Development of expertise in ageing;
- Development of focused activity in behavioural economics including the creation of new

partnerships with colleagues in the UCD School of Computer Science and Informatics and ongoing relationships with colleagues in the UCD College of Life Sciences;

- The consolidation of the leadership role in the development of experimental methods for evaluation, including the strengthening of our linkages with EU partners through the European Network of Early Childhood Interventions;
- Further development of the undergraduate internship programme, which has been running successfully on a pilot basis for the past two years.

Current research at Geary

In the Centre for Behaviour and Health, Geary researchers are currently conducting a number of major research projects in the area of higher education.

EuroStudent Study

A Europe-wide survey on the socioeconomic and living conditions of third-level students.

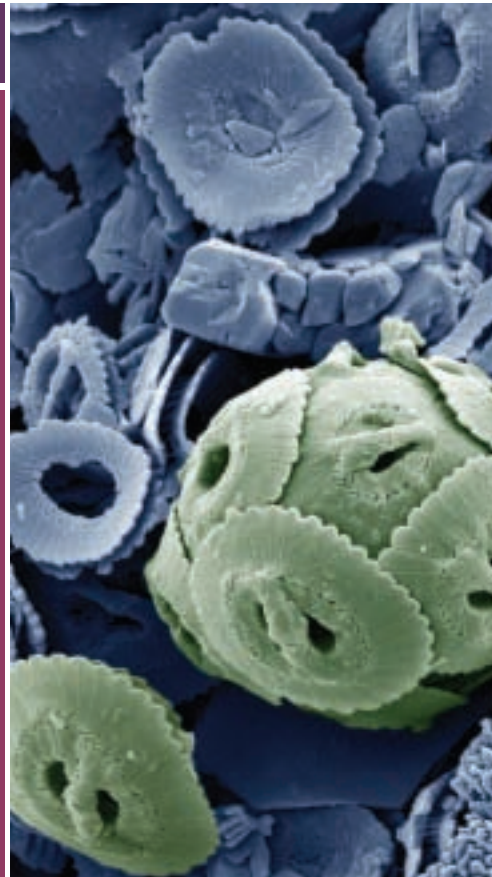
Irish Universities Study

A major panel study of students and researchers in the seven Irish universities.

Higher Education Access Programmes

(in association with UCD's New ERA Widening Participation Initiative)

This study evaluates the impact of access programmes on education participation, retention and success.



*Runner-up in the
2008 Images of
Research Competition
- 'Finding Nanno'
was created by Lee
Toms, UCD School of
Geological Sciences*

UCD Urban Institute of Ireland

A centre for the development of new technologies, policies and ideas designed to improve the quality of the working and living environment, the Urban Institute of Ireland (UII) unites engineers, planners, architects, geographers, economists and scientists – all with a view to finding innovative ways of tackling the challenges of sustainable development.

Progress to date

The UII has been highly successful in 2007/08, attracting major grants under the EU FP7 which include: YEAR, Coordination and Support Action (€270,000); ASSET, Collaborative project (€402,600 for UCD); HAPPINESS, European Research Council Grant (€95,000) and Erasmus Eurasia Exchange programme which provides funding for five full-time PhD students from Asia to study at UCD for three years. In addition, the UII was successful in securing nationally competitive funding through SFI, IRCHSS and IRCSET.

During the year the Institute expanded to accommodate 27 PhD students and five postdoctoral fellows.

The first cohort of the IRCHSS/IRCSET Graduate Research Education Programme (€1.5 million) hosted in UII will commence in September 2008. The PhD Programme in Sustainable Development has received funding for 10 full-time students. The four clusters of the Programme are: Biodiversity and Climate Change; Environmental Economics and Policy; Planning and Land Use; and Transport and Infrastructure.

A prestigious SFI E.T.S. Walton Visiting Professor Award was awarded to Professor Roger White from Memorial University, Canada who is a leading international researcher in the modelling of land-use change.

Dr Susana Ferreira and Professor Peter Clinch, UCD School of Geography, Planning and Environmental Policy, and Dr Finbarr Brereton, with support from UII, were awarded a prestigious European Science Foundation Grant, funded by IRCHSS for HAPPINESS (HAPPiness, Political Institutions, Natural Environment and Space), a comparative analysis of the influence of environmental conditions, environmental regimes and political context on subjective well-being.

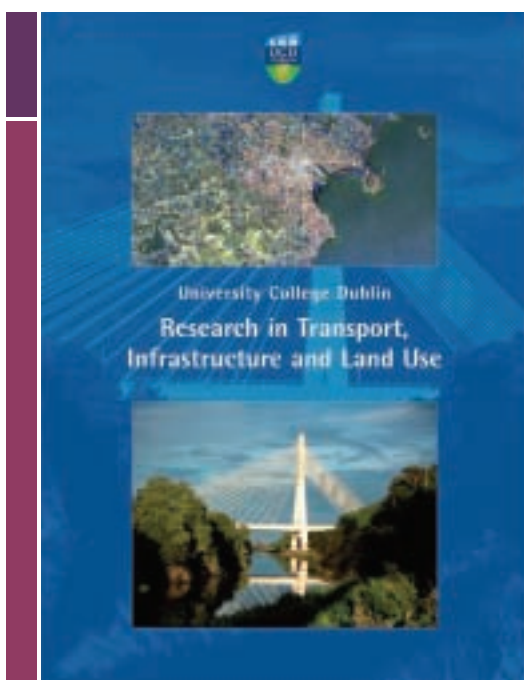
The Young European Arena of Research 2008 (YEAR 2008) project, funded under EU FP7 and led by Professor Eugene O'Brien, gives early-stage researchers from across Europe an opportunity to showcase their work in the area of road transport to experts within the field. Fifty finalists were invited to attend the Transport Research Arena 2008 Conference in Ljubljana, Slovenia, in April 2008 to display their work.

Future objectives

The ongoing Urban Environment Project funded by the Environmental Protection Agency aspires to link spatial policy and planning to decision-making at local and regional levels, using a computer-based model (MOLAND) to address economic, environmental and social dimensions in an integrated fashion. A key objective is to roll this out as an operational tool that enhances sustainable development.

UII is co-ordinating a programme within UCD entitled the 'Earth Systems Institute' led by Professor Frank Convery. The initiative brings together researchers in the areas of Earth Systems, Bioresources, Nano-risk, Biocomplexity, Environmental Policy, Urban Studies (including Transport and Land Use) and Energy to address the future impact of environmental change and changing energy sources on Ireland.

The UII brochure in the area of Transport, Infrastructure and Land Use provides a sample of current UCD projects and publications authored by this research group



UCD Humanities Institute of Ireland

UCD Humanities Institute of Ireland (HII) is a dynamic and creative space for research and debate in the arts and human sciences. The HII's strategic objectives centre on supporting innovation and excellence in arts and humanities research, while providing a platform for high-quality doctoral students and career scholars. The Institute is directed by Dr Marc Caball. Its current research programme is funded through HEA PRTL Cycle 3 and is entitled 'Identity, Memory and Meaning in the 21st Century'.

Progress to date

During the period of this report, 29 doctoral students and two postdoctoral fellows were members of the HII. Three academic staff members of the UCD College of Arts and Celtic Studies and a visiting academic were affiliated to the HII while on sabbatical research leave. In addition, there are six principal investigators from the UCD College of Arts and Celtic Studies leading research strands within the HII's programme. The Irish Virtual Research Library and Archive team continues to digitise an important body of humanities content from UCD's rich archival holdings.

In the area of international networking in the humanities, the HII is an active member of the Consortium for Research Institutes in the Humanities and of the Humanities Institutes of Advanced Study Group managed by the School of Advanced Study at the University of London.

A range of innovative topics, many inter-disciplinary in nature, were investigated by HII doctoral students. In addition, in line with its commitment to enhancing humanities graduate training, the HII hosted a number of master classes on academic presentation skills.

Notable achievements

The acclaimed HII inter-disciplinary seminar series and other lectures provided a lively focus for discussion and debate among students, academics and interested members of the public. Among the speakers who participated were:

- Dr Rory Miller (King's College, London) – *Jewish Community in Ireland and Zionism*;
- Professor Margaret Kelleher (NUI, Maynooth) – *Bilingual Culture in Victorian Ireland*;
- Professor Gerry Kearns (University of Cambridge) – *Nation, Diaspora and Cosmopolis in Ireland*;
- Hugo Hamilton (novelist) – *Identity and Disguise*;
- Micheál Ó Siadhail (poet) – *Trauma and Vision and the Shaping of History*.



Dr Marc Caball, Director of the Humanities Institute of Ireland, and novelist Hugo Hamilton, who participated in the HII's inter-disciplinary seminar series

The HII, in partnership with the UCD School of Languages and Literatures, hosted a series of lectures on comparative literature delivered by leading international scholars. Among these scholars were Professor Elizabeth Boa (University of Nottingham), Professor Aleida Assman (University of Konstanz) and Professor George Steiner (University of Oxford).

HII Distinguished Lectures were delivered by Professor Tomás Ó Cathasaigh (Celtic Studies, Harvard), Professor Julian Thomas (Archaeology, Manchester) and Professor Werner Jeanrond (Divinity, Glasgow).

The HII hosted and supported several high-profile conferences that addressed cross-cutting issues such as the cultural impact of globalisation in Ireland; world-writing and migration; script and print cultures in Ireland; queer theory; and literature.

Future objectives

The HII's strategic research agenda will centre on the humanities in Ireland in a comparative global context. This will leverage UCD's impressive strengths in humanities scholarship and research and it will exploit HII's access to research networks in Ireland and internationally.

UCD Complex and Adaptive Systems Laboratory (CASL)

The UCD Complex and Adaptive Systems Laboratory (CASL) is an innovative research initiative that places informatics, applied mathematics and computational sciences at the heart of UCD's science strategy. Through CASL, researchers in finance, human sciences and economics are harnessing the tools of informatics, genetics and computational biology to provide new knowledge from complex information. CASL hosts some of Ireland's most innovative researchers working in diverse fields such as biomedical modelling, financial predictions and catastrophic events. CASL provides new solutions in data mining and computational modelling for the world's most intractable problems, in health, finance and the environment. The Director of the Institute is Dr Scott Rickard.

Progress to date

Since its launch late in 2006, CASL has grown from 175 to over 210 researchers and staff. Major programmes include Technology Research for Independent Living (TRIL) and CLARITY, which will be hosted in CASL until early 2009. In August 2008, leading mathematician Professor Nigel Boston joined the Claude Shannon Institute as an SFI Stokes Professor of Pure and Applied Algebra.

Notable achievements

- 19–20 May 2008: The Claude Shannon Institute Workshop on Coding and Cryptography took place at UCC;
- June 2008: *Scientific Predictions of the Irish Climate in the 21st Century* – co-edited by Professor Peter Lynch and launched by Environment Minister John Gormley TD;
- July 2008: Maurice Coyle and Peter Briggs, along with Professor Barry Smyth, launched

HeyStaks, a technology to improve internet search by stacking and sharing information;

- Dr Michael O'Neill was awarded SFI PI funding in August 2008 for the EDGE Project (Evolution in Dynamic Environments with Grammatical Evolution);
- The Machine Learning Group, under Professor Pádraig Cunningham, made available two software applications for biomedical data analysis, metaFIND and enableNMF;
- The Claude Shannon Institute has been selected to host the Ninth International Conference on Finite Fields and Applications which will take place 13–17 July 2009 at UCD.

Future objectives

- Initiate a new programme on Systems Biology;
- Develop a new programme on innovation research;
- Establish a strategic research cluster on financial mathematics.

Runner-up in the 2008 Images of Research Competition – 'Seastars' was created by Dr Julia Sigwart, UCD School of Biology and Environmental Science



UCD Institute of Food and Health

The UCD Institute of Food and Health, a multidisciplinary, campus-wide initiative, brings together leading academics and researchers from all areas of food and health research at UCD. These areas include food safety; food and the consumer; food production; food regulation; food and nutrition; food science; and food biosystems. The Institute's aim is to foster research across disciplines and, through its research, influence national and European policy; promote public awareness of food and health issues; and engage with international peers. The Institute's Director is Professor Mike Gibney.

Progress to date

As part of the National Functional Food Research Centre (NFFRC), which is jointly funded by Enterprise Ireland and four major Irish food companies, the Institute recently received €8.64 million. The NFFRC, which also includes UCC, Teagasc Moorepark Food Research Centre and UL as partners, will investigate the development of milk-based functional foods targeting health areas, including early-infant development, metabolic syndrome, immunity/infection and colorectal cancer. Research on the isolation, identification, characterisation, formulation and validation of milk bioactives will form the basis of the Centre's research, under the co-ordination of Professor Dolores O'Riordan, UCD School of Agriculture, Food Science and Veterinary Medicine.

Notable achievements

The Institute has received €971,000 from the Marine Institute and the Department of Agriculture, Fisheries and Food as part of the Marine Functional Foods Programme. In collaboration with researchers from UCC and NUI Galway, the Marine Functional Food Research Initiative, led by Professor John O'Doherty, UCD School of Agriculture, Food Science and Veterinary Medicine, will identify novel marine-food ingredients and products by concentrating on three areas: the use of fish-processing waste; the sustainable exploitation of underutilised fish and seaweed; and the development of value-added products from aquaculture.

The Institute was awarded a four-year contract from EU FP7 to create a food chemical exposure surveillance system within the EU worth €625,870 to UCD. The FACET project (Flavouring, Additives and Food Packaging Exposure Task), with 20 partners throughout the EU, will investigate three core areas: exposure to food additives; flavouring substances; and food packaging migrants.

Through the Health Research Board and the Food Institutional Research Measure under the Department of Agriculture, Fisheries and Food, the Institute has received €1.62 million for its role in the establishment of a National Research Centre for Diet, Obesity and Diabetes (NRC). With Professor Cecily Kelleher, UCD School of Public Health and Population Science, leading the UCD multidisciplinary team and working with researchers from UCC and Teagasc, and on an all-island basis with Ireland and Northern Ireland's Population Health Observatory, the NRC will produce internationally competitive research that will provide the evidence base for public policy, health promotion and clinical practice on the prevention and management of obesity, diabetes and related metabolic disorders.

The Institute has taken a lead role under Professor Mike Gibney in the Joint Irish Nutrigenomics Organisation consortium with UCC, TCD and UU as partners. The purpose of the consortium is to create a large database containing information that will represent the national nutritional phenotype. UCD has obtained funding from FIRM for two aspects of the project, the National Adult Nutrition Survey (€1.54 million) and the Metabolic Challenge Study (€982,362).

Professor Francis Butler, UCD School of Agriculture, Food Science and Veterinary Medicine, is leading the UCD team within the Institute on a €2.3 million FIRM-funded project entitled Safe and Healthy Foods. With researchers from Teagasc, UCC, QUB, UUJ, the Agri-Food and Biosciences Institute in Northern Ireland and the Food Safety Authority of Ireland, the project will develop a monitoring and surveillance programme for food safety and health on the island of Ireland.

The Institute, under Professor Butler, also has a lead role in the Microbial Quantitative Risk Assessment Network of Ireland. Funded under FIRM (€291,115), the objective for the network is to develop a high-calibre, internationally

recognised, multidisciplinary network of national experts on the application of microbial quantitative risk assessment as a tool to underpin risk-management actions.

UCD Institute of Food and Health is a lead partner of the Irish Food and Health Research Alliance (IFHRA), established to direct a strategic commitment to research in the area of food and health. IFHRA is funded by the HEA under PRTL1 Cycle 4, of which the Institute received €1.8 million. Working closely with other institutions on the island involved in food and health research, the Institute will have a specific role in the development of the fourth-level sector in food and health research on the island of Ireland.

The Institute has, for the past number of years, run the Food Graduate Development Programme, funded under FIRM (€500,000). This programme was developed by UCD, UCC and Teagasc, with the aim of providing skills training to postgraduate

students and research staff in universities and research institutions in Ireland. Modules in this programme have a strong emphasis on the skills required from leaders in the agri-food sector, food industry and other institutions nationally and internationally.

Future objectives

Continuing the multidisciplinary ethos of the Institute, a number of Ad Astra PhD scholarships will commence in autumn 2008. The cross-disciplinary themes include: a Study of Consumer Understanding and Willingness-to-Pay for Nutrition and Health Claims on Food; Obesity, Physical Activity and the Built Environment: Environmental Workplace Interventions (Stair-climbing) for Weight Management and Health; and Measuring the Carbon Footprint of Irish Food Trade. A further Ad Astra scholarship is under way, examining the private governance of food safety and quality.

Image captured from a scanning machine that will be used by one of the studies in the JINGO project for the measurement of body composition including bone-mineral density, fat mass and lean mass. This image shows a breakdown of the bone-mineral density in specific regions of the body



UCD John Hume Institute for Global Irish Studies

Eighty million people around the world identify themselves in some way with Ireland and with Irishness. Set against this broader context, the mission of the UCD John Hume Institute for Global Irish Studies is to:

- Engage, connect and develop this diverse global community as an active social network of global citizens;
- Engage with the past, the present and the future of Ireland and the Irish;
- Capture and map the global Irish community;
- Explore new directions in the study of Ireland and the Irish;
- Apply specific learning outcomes from thematic areas into wider contexts such as conflict resolution, interculturalism, integration and development.

Progress to date

The Institute's Director, Dr Brian Jackson, completed, with the Institute's principal investigators (PIs), the first recruitment round for postdoctoral fellowships and PhD studentships funded under the HEA PRTL Cycle 4. Four postdoctoral posts and six PhD students are participating in the programme from October 2008.

Other activities are funded from philanthropic funding and from generated income. These include hosting and participating in a range of events, including:

- The first Global Irish Forum, which took place in New York in November 2007 and attracted 1,000 participants. The programme featured 30 speakers from Ireland and the USA. The second forum will take place in Dublin on 10 November 2008;
- The first international James Joyce Symposium. This was organised by Professor Anne Fogarty from the UCD School of English, Drama and Film.

The Institute funded scholarships and travel bursaries which enabled 20 PhD students from around the world to attend what is intended to be an annual event;

- An international workshop on Ireland and Diaspora attended by 20 senior academics drawn primarily from *Universitas 21* member institutions;
- An international symposium on the *Adoption of Agriculture in Ireland*, organised by Dr Graeme Warren, UCD School of Archaeology;
- The programme of the 60th UCD International Summer School this year focused on the theme of *Shared Histories: Plantation, Migration, Integration and the Irish*.

The Institute has launched an Artist-in-Residence fellowship scheme to promote participation in its public programme. The first Artist Fellow will be the poet Dr Nessa O'Mahony, who will take up her post in October 2008. Her work has been widely published and translated and she has been the recipient of a number of international awards and bursaries.



A panel session from the first Global Irish Forum held in New York in November 2007 (from left): Niall O'Dowd, Declan Kelly, Don Keough, John Duffy, Loretta Brennan Glucksman, UCD President Dr Hugh Brady, Denis Kelleher and David McWilliams

Charles Institute

The Charles Institute is a partnership between the UCD School of Medicine and Medical Science, affiliated teaching hospitals (St Vincent's University Hospital and Mater Misericordiae University Hospital) and the board of the City of Dublin Skin and Cancer Hospital Charity. The institute will be located between the Health Sciences Centre and the UCD Conway Institute in a new facility with a capital investment of €18 million and a 2010 completion date. The Institute's vision is to become a world leader in dermatology research and training, which will lead to improved patient care through the discovery of new treatments and therapies.

Pictured at the launch of the Charles Institute are (back row, from left): Stephen Walsh; Prof. Eoin O'Brien (UCD Conway Institute); Matthew O'Brien; Gerard Lawler, Thomas Brennan; Padraig O'Cearbhaill; Seamus Kennedy; Prof. Bill Powderly (UCD School of Medicine and Medical Science); and Ciaran Ryan. Front row (from left): Oonagh Manning; Prof. Des Fitzgerald (Office for Vice-President for Research); Peter O'Flanagan; UCD President Dr Hugh Brady; Mairin McDonagh-Byrne; and Dr Paul Collins



Notable achievements

The Charles Institute was launched by the Minister for Health and Children Mary Harney TD on 13 June 2008 in UCD Research. A board of directors has been appointed and is meeting on a quarterly basis to provide governance for the Institute. Through a series of detailed design workshops, the building sub-committee of the board has completed an initial schedule of accommodation, a projected cash-flow statement and a project plan. A clinical sub-committee has also been formed whose remit will include creating links to other dermatology units in Ireland and abroad, and the training of medical and nursing students in various aspects of dermatology.

Future objectives

Completion of the detailed design brief for the building and sign-off on the building layout will enable the detailed building design phase to commence in preparation for planning permission. In addition, the board will seek to recruit a Professor of Clinical Dermatology/ Institute Director to lead the Institute, as well as establishing an International Advisory Committee.

UCD Clinton Institute for American Studies

UCD Clinton Institute for American Studies has been established at UCD with the support of the Irish government in recognition of the crucial contributions by former president William Jefferson Clinton to the Irish Peace Process. The Institute is devoted to advancing academic research and public discussion about the USA in Ireland and beyond. It advances UCD's strategic mission to internationalise research programmes and to foster inter-disciplinary research and teaching programmes. The Institute Director is Professor Liam Kennedy.

Progress to date

In the academic year 2007/08 the Institute ran a busy schedule of research seminars, public lectures, symposia and international conferences. This included conferences on *Human Rights and Media* (May 2008), on *Labour History* (April 2008) and symposia on the *Vietnam and Iraq Wars* (November 2007) and *The USA and the Northern Ireland Peace Process* (May 2008). It also co-organised several events with international partners, including symposia on *Contemporary American Culture* at the University of Warwick (March 2008) and on *Transnational American Studies* at the Free University in Berlin (May 2008).

The Institute continued to support dedicated, collaborative projects to spearhead its research culture. These included projects on: The USA and Northern Ireland, 1968–2000; War and American Identity, and The American-Irish – all projects involving Irish and international scholars and professionals.

The postgraduate programmes continued to grow, with the introduction of a new master's programme in Media and International Conflict and an increase in PhD entrants. The graduate culture of the Institute is closely linked to international networks and research activities. In July 2008, the second Clinton Institute Summer School brought together scholars and doctoral students from across Europe and the USA to discuss current issues in the study of the USA.

In November 2007, Professor Kennedy was awarded an IRCHSS grant (€300,000) to support a three-year research project on photography and international conflict. A postdoctoral fellow has been appointed to support the project.

In May 2008, the Institute co-hosted a Forum on the Peace Process in the USA Capitol Building in Washington. The event symbolically marked the 10th anniversary of the Good Friday Agreement



Ambassador Kathleen Stephens, Congressman Peter King and David Byrne SC pictured at the Forum on the Peace Process in the USA Capitol Building in May 2008

and brought together participants from the USA Congress, the White House and non-governmental groups to discuss the lessons that may be learned about the interactions of these agencies as a model for resolving conflict in the wider world.

Future objectives

The UCD Clinton Institute will continue to build its graduate and research programmes. This will involve:

- Integrating its graduate and research programmes to enhance the international profile of the Institute, its faculty and its students;
- The pursuit of national and European funding opportunities to support research projects, and the nurturing of new funding partnerships with public and private sectors to support cultural and outreach programmes;
- Furthering international collaboration with centres of excellence in American Studies, through collaborative research projects, the Institute's Summer School and postgraduate student exchanges.

Irish Institute for Chinese Studies

The Irish Institute for Chinese Studies was officially launched on 26 September 2006 by Chinese Vice-Premier Zeng Peiyan, following an initial development period when it was known as the UCD Centre for Chinese Studies. The UCD Confucius Institute for Ireland is based in the Irish Institute for Chinese Studies. The Director of both Institutes is Dr Liming Wang.

Aiming to achieve stronger educational, cultural and business links between Ireland and China, the Institute has the following primary objectives:

- Increased recruitment of Chinese students to UCD through partnership programmes;
- Creation and delivery of degree pathways in Chinese Studies to home students;
- Development of an international research profile in Chinese Studies;
- Facilitation of Irish–Chinese economic and cultural links;
- Provision of professional consultancy services for government and business.

Progress to date

The academic year 2007/08 saw increased overall recruitment of Chinese students to UCD, while at the same time home student demand for places on the BComm with Chinese Studies degree programme has continued to rise. For the five years before 2006, fewer than 20 students per year were recruited to UCD from China; in 2008, numbers had risen to 100. The BComm with Chinese Studies programme received 159 applications from home students for 14 places in 2006/07; 223 applications for 19 places were awarded in 2007/08; while the 2008/09 programme has awarded 21 places from 260 applications. Twelve core and elective modules have been developed for this programme.

The Institute has developed a new pre-master's studies programme, due to begin in 2008/09. The pre-master's studies programme represents an innovative solution to the challenge of recruiting and preparing high-calibre Chinese graduates for postgraduate degree courses at UCD: 20 final-year undergraduates from three Chinese partner universities will attend the Pre-Masters Studies course, which includes three final-year undergraduate modules in their second semester in either Law or Business, the subject areas of the programme's pilot year. The Pre-Masters Studies programme is the fourth year of a 3+1+1 model in which students spend three years in their Chinese university and two at UCD, the final year being spent taking a master's degree course. The programme is the result of agreements between UCD and three partner universities in China, as

well as agreements within UCD itself between the Institute and participating Schools.

The establishment of the UCD–CSC (China Scholarship Council) Scholarship Scheme through the joint efforts of the Institute and UCD Graduate Studies brought 10 PhD scholars to UCD. Joint supervision of PhD research programmes has been implemented between the Institute and the Schools of Law and Business.

In order to identify and meet the needs of Irish business in China, the Institute carried out a survey entitled *National Survey of Firms and Companies in Ireland on the Need for Support and Expertise in Chinese Business, and Training in Chinese Language and Culture*. Early indications from this research are very positive.

Future objectives

- Expansion of undergraduate and postgraduate degree pathways in Chinese Studies in partnership with relevant schools at UCD;
- Expansion of the Pre-Master's Studies Programme as a feeder programme into other subject areas;
- Pursuit of fundraising opportunities towards the realisation of a 'new home' for the Institute at UCD;
- Conducting further research at doctorate and post-doctorate levels across a broader base of China-related issues;

- Greater engagement with policy makers, offering first-hand research evidence to inform and influence policy decisions;
- Promotion of greater international collaboration and awareness of Chinese language and culture in Ireland;
- Provision of expertise and services to both the public and private sectors towards deepening the economic links and improving relations between Ireland and China;
- Continuing development of imaginative and exciting programmes of events and outreach programmes that will enhance intercultural appreciation and activity in Ireland.

Cultural artists celebrate Chinese New Year at UCD

The Irish Institute for Chinese Studies and the UCD Confucius Institute for Ireland maintained the new tradition of holding an annual Spring Festival and Chinese New Year Gala Performance at UCD's O'Reilly Hall in February 2008. The celebration of the Year of the Rat proved even more popular than 2007's spectacular Beijing Opera. Around 1,000 spectators were enthralled by the Chengdu Opera Troupe whose artists gave stunning expositions of dance, hand-shadows, acrobatics and singing. The Beijing Bailing Shadow Puppet Troupe, the only surviving professional exponents of this ancient art form in the world, also gave a delightful performance.



Photo on left: Performer from the Beijing Bailing Shadow Puppet Troupe



Photo on right: Liu Yi from the Sichuan Opera Troupe (background) and Yang Hong from the Chengdu Opera Troupe at the UCD Confucius Institute for Ireland Chinese New Year Celebrations at UCD

UCD Mícheál Ó Cléirigh Institute

The mission of the UCD Mícheál Ó Cléirigh Institute consists of three main strands:

- Conserve, curate and manage the manuscripts and books entrusted to UCD by the Irish Franciscans through cataloguing, digitisation and expert curatorship and restoration;
- Oversee a research programme in Irish history and civilisation through weekly seminars, frequent conferences and publications;
- Encourage a new generation of dedicated scholars through provision of PhD and postdoctoral fellowships and the development of major projects.

Dr John McCafferty is the Director of the Institute.

Psalter of Caimín. Image courtesy of UCD-OFM partnership, held in the UCD archives

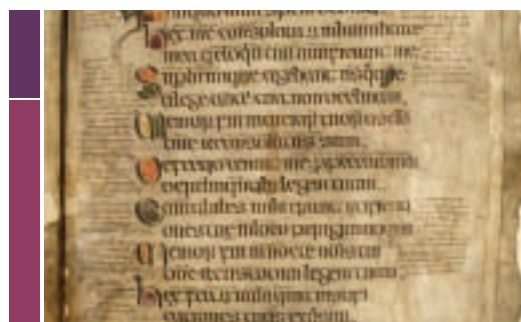
Progress to date

The Institute's work and profile expanded considerably in 2007/08. Between September and December 2007, the Louvain 400 anniversary was celebrated by a number of high-profile public events. These included major exhibitions of Franciscan and related material, which was put on public display for the first time ever. Collaborators included the Hunt Museum, Limerick (Franciscan silver from the south-west of Ireland), Waterford Treasures (the Wadding papers) and the National Library of Ireland (the Tadhg Ó Cianáin diary of the Flight of the Earls).

An exhibition of Franciscan chalices rediscovered as a result of the UCD Mícheál Ó Cléirigh Institute's IRCHSS-funded project on the material culture of the mendicant orders was mounted at the National Museum of Ireland Decorative Arts and History Collins Barracks and is currently ongoing. A collaborative exhibition, *Writing Irish History: the Four Masters and their World*, involving the UCD Mícheál Ó Cléirigh Institute, the Royal Irish Academy and TCD, attracted over 80,000 people.

In May 2008, the Second Annual Mícheál Ó Cléirigh Summer School was held in Leuven on the theme of migration and exile and successfully brought together historians, linguists, state officials and sociologists from Ireland and Europe to examine concepts and issues relating to contemporary and historical migrations.

The Institute continued to hold weekly seminars on all aspects of Irish history, language and literature. A specific day dedicated to worldwide Franciscan studies and to profiling the Institute's various projects was initiated with a view to raising its international profile.



The Institute, in association with UCD Archives, continued on its programme of conserving and cataloguing the Franciscan manuscripts and books. Books from the Franciscan collection are currently being catalogued by an expert consultant in collaboration with UCD Special Collections. The C manuscripts ('Louvain papers') are also being listed before they move from the Franciscan Library in Killiney to the UCD Archives.

A new project funded by the Heritage Council's INSTAR programme on *Mapping Ireland: Death and Burial in Ireland from the 1st to the 8th Centuries AD* has been initiated and a postdoctoral fellow has been appointed to undertake the research.

Future objectives

The Institute's plan for 2008/09 includes the development of a new book project involving cataloguing and managing books in Killiney, Co. Dublin, and in friaries throughout Ireland. This also includes the commencement of a historic library project in association with the Katholieke Universiteit Leuven, the University of Antwerp and the Plantin-Morteuus Museum, Antwerp. The Institute is directing negotiations with other institutions in Ireland and in Leuven on the establishment of a Centre for Irish Studies in Leuven.

UCD Institute for Sport and Health

The UCD Institute for Sport and Health has been established under the direction of Professor Colin Boreham. The overall aims of the Institute are to promote exercise for health and sporting excellence for the people of Ireland. It will accomplish these aims through a range of activities, including teaching, research and service provision. The Institute is governed by the following principles to:

- Provide teaching and outreach services of the highest standard;
- Strive to be at the forefront of international sports science research.

Progress to date

While the Institute for Sport and Health remains in the early stages of development, notable progress has been made in the past year. It now boasts a fully functional Human Performance Laboratory in its Newstead base, with state-of-the-art equipment for the physiological measurement of exercise capacity and related health parameters. These include DEXA scans (bone status and body composition), isokinetic dynamometry (muscle strength and power), large treadmills and electronically braked cycle ergometers (work capacity), 'Portapres' (arterial properties and heart rate variability) and a 'Bod Pod' (body fat percentage).

A laboratory manager, Romain Denis, has been appointed from Brunel University, and the laboratory is beginning to host a number of collaborative projects, including muscle electrical stimulation for weight loss (Dr Brian Caulfield/BMR Ltd); functional fitness in the elderly (Professor Mike Gibney, UCD Institute for Food and Health); and the influence of stretching on muscle strength (Professor Philip Newsholme, UCD Conway).

The Institute laboratory is also providing a number of services for local sport, including performance testing of the Leinster Senior Rugby Squad and the Irish Women's Hockey Squad in its preparations for the London Olympics in 2012.

Other staff appointments include Dr Chris Lonsdale, a sports psychologist who joins from the Chinese University of Hong Kong. Dr Lonsdale takes up a unique appointment, jointly funded with the Irish Rugby Football Union (IRFU), to develop sports psychology services for the IRFU, as well as teaching and research for the university. Over the past year, Professor Boreham has been appointed Chair of the Accreditation Committee for the Irish Institute of Sport; Professor Giuseppe De Vito has also been appointed to this committee. In addition, Professor De Vito was elected to Fellowship of the

Faculty of Sport and Exercise Medicine.

The Institute hosted two guest academics during the year (Dr Geir Resaland, Oslo and Nienke Wijnstok, Amsterdam), and visits to discuss collaborative projects were made by Professors Jos Twisk and Willem van Mechelen (Amsterdam). Sixteen staff from the Norwegian School of Physical Education held their annual research seminar at the Institute, and research talks were given by Visiting Professor David Goldspink, as well as by his equally distinguished brother, Professor Geoffrey Goldspink.

Research grants were awarded from the Health Research Board (Dr Deirdre Hurley-osing) and the Irish Institute of Sport (Professors Boreham and De Vito). Two IRCSET studentships and two Ad Astra studentships were also awarded.

Future objectives

The UCD Institute for Sport and Health will continue to expand its activities and capacity in its key areas of operation. Research grant applications have been submitted or are planned for submission to the Health Research Board, Strand 3, FP7 and internal sources such as the College of Life Sciences Strategic Research initiative. Collaborative research links both internally and externally (including with Bologna, Amsterdam, Maastricht, Vienna, UL, TCD and UU) will be consolidated, and at least one additional visiting professor of international standing will be appointed. Internal links of strategic importance will be strengthened, in particular with the UCD School of Public Health and Population Science, and a thematic PhD programme in Exercise and Health will complement the positioning of this topic as a key research theme within the UCD College of Life Sciences. The Institute and its staff will also continue to play a key role in translating research and scholarly expertise into the work of internal and external committees and decision-making bodies concerned with sport and health.

Centre for Synthesis and Chemical Biology (CSCB)

The Centre for Synthesis and Chemical Biology (CSCB) is a collaboration in the chemical sciences between UCD, TCD and RCSI. Its mission is to promote knowledge, health and economic advancement to enrich the nation's research and educational resource base and to facilitate the development of the pharmaceutical industry in Ireland. The Institute's Director is Professor Pat Guiry.

The CSCB aims to:

- Advance knowledge in the chemical sciences of synthesis and chemical biology;
- Bring together, for the first time in Ireland, a critical mass of researchers in the chemical sciences;
- Serve as a national resource for researchers in academia and industry in synthesis and chemical biology;
- Fuel the Irish pharmaceutical industry, accelerate the development of an indigenous pharmaceutical sector and attract pharmaceutical research and development to Ireland.

Progress to date

In 2007/08, CSCB researchers graduated close to 30 PhD students, published 150 articles in peer-reviewed journals, gave 145 invited lectures and poster presentations and were awarded over €9.5 million in external funding. There were six invention disclosures, one licence agreement and seven patents filed.

A thematic graduate programme in (Bio) pharmaceutical and Pharmacological Sciences, funded by the HEA PRTL Cycle 4 in collaboration with colleagues in TCD, DCU, UCC, QUB and the RCSI, was launched in UCD.

Among the events hosted by the CSCB included:

- Bernal Symposium on Protein Crystallization, September 2007 at UCD;
- First meeting of the Irish Institute for Metal-based Drugs, September 2007 at the RCSI;
- *Recent Advances in Synthesis and Chemical Biology VI*, December 2007;
- RSC Symposium – *Chemistry and Cancer*, February 2008;
- Third ERA Chemistry *Flash* Conference, March 2008;
- Ninth Annual Symposium on Supramolecular Chemistry in Ireland, March 2008;
- International Neuroimmunology Symposium, March 2008;
- SBE's Fourth International Conference on Bioengineering and Nanotechnology, July 2008 at UCD.

Notable achievements

The sixth annual CSCB symposium *Recent Advances in Synthesis and Chemical Biology VI* was held at TCD on 14 December 2007. Delegates heard plenary lectures from six distinguished speakers, describing current research at the interface between chemistry and biology.

The 2007 annual Bristol Association for Crystal Growth (BACG) conference, which was a joint meeting with the Irish Association for Crystal Growth (IACG), was held at UCD in September. The conference was chaired by Professor Brian Glennon, CSCB and the UCD School of Chemical and Bioprocess Engineering.

The first meeting of the Irish Institute for Metal-Based Drugs was held at the RCSI on 20 September 2007, chaired by Professor Kevin B. Nolan, CSCB and RCSI.

Future objectives

The CSCB will continue to strive towards the strategic, research and teaching and learning objectives as outlined at its inception by aiming to:

- Complete the design of the new BSc degree in Medicinal Chemistry and Chemical Biology, which commenced with its first entry of students in September 2007;
- Develop Biopharmaceutical Sciences as a new strand of activities, funded under the HEA PRTL Cycle 4;
- Build additional facilities to host programmes in drug delivery and structural biology;
- Expand the Science@CSCB outreach programme to include more visits from students and teachers.

Molecular Medicine Ireland (MMI)

On 17 April 2008, the Dublin Molecular Medicine Centre (DMMC) became Molecular Medicine Ireland (MMI), with the addition of UCC and NUIG to the DMMC partners, UCD, TCD and the RCSI. MMI is a not-for-profit company established by its partner institutions to achieve their common objectives in accelerating the translation of scientific research into better quality outcomes for patients. The Chief Executive is Dr Ruth Barrington.



Notable achievements

Molecular Medicine Ireland co-ordinated a successful application, led by Dr Peter Doran, Director of UCD's Clinical Research Centre, on behalf of MMI's partner institutions and in association with QUB, to establish a control biobank of healthy Irish volunteer samples, GeneLibrary Ireland. UU has since joined this consortium. The GeneLibrary Ireland biobank is expected to contain DNA and blood samples from 10,000 volunteers throughout Ireland, together with the results of a detailed medical examination and information on lifestyle and environment. The development of GeneLibrary Ireland will allow researchers to study the role that different genes play in disease and health processes, thereby improving health.

MMI, with the active involvement of Dr Peter Doran, UCD School of Medicine and Medical Science, is participating in the pan-European Biobanking and Biomolecular Resources Research Infrastructure network to ensure that Irish researchers can benefit from the networking of biobanks in Europe and that GeneLibrary Ireland is developed in harmony with international best practice.

With the leadership of Professor William Watson, UCD School of Medicine and Medical Science, MMI is facilitating the evolution of the Prostate Cancer Research Consortium from a trans-institutional city-wide in Dublin network to a national resource involving UCC, NUIG and their associated hospitals.

In June 2006, a DMMC bid from TCD, UCD and RCSI was successful in securing a multimillion-euro investment from the Wellcome Trust and the Health Research Board for the Dublin Centre for Clinical Research (DCCR). The DCCR will provide the infrastructure for clinical research in Dublin, including a city-wide research information technology network and a training programme for research nurses.

Earlier this year, Jeremy Towns was appointed Programme Manager for the DCCR, and management structures, on which UCD is represented by Professor Michael Keane, UCD School of Medicine and Medical Science, are now in place to support an array of disease/research groups with representatives from across the city. Over the summer, disease groups in Diabetes and Pulmonary Fibrosis have started to work on city-wide clinical research projects. Planning permission is expected for a new clinical research facility at St James's Hospital in September 2008 and the commissioning of this facility in 2010 will complete the network of clinical research facilities that include those at the Mater Misericordiae University Hospital and St Vincent's University Hospital sites.

MMI courses and workshops build on the strengths of five premier academic institutions and affiliated teaching hospitals. They provide an easily accessible structured means for postgraduate students and staff to develop their skills and training in the biosciences, with a major emphasis on translational research. Highlights in this period included a second run of the Molecules to Medicines course, in partnership with Wyeth; the fifth run of the popular Techniques and Strategies in Molecular Medicine; and an exciting new development where places were offered on selected UCD structured PhD taught-course modules developed by the UCD Conway Institute.

Pictured at the launch of MMI are (back row, from left): Dr Ruth Barrington (CEO, MMI); UCD President Dr Hugh Brady; Dr John Hegarty (Provost, TCD); Dr Michael Murphy (President, UCC); Mr Michael Horgan (CEO/Registrar, RCSI). (Front row, from left): Dr Pat Morgan (Dean of Graduate Studies, NUI Galway); Dr Michael Kamarck (Chair, MMI); and Mary Hanafin, former Minister for Education and Science

National Digital Research Centre (NDRC)

Founded in 2006 by a consortium of third-level institutions (UCD, DCU, TCD, IADT and NCAD) with the support of the Department of Communications, Marine and Natural Resources, the National Digital Research Centre (NDRC) operates as an independent, not-for-profit centre of excellence. The NDRC's applied digital technology research supports the emerging digital industry in Ireland, bridging the gap between innovative research and the marketplace. Collaboration, based on multidisciplinary and multiparty project teams, is core to the NDRC ethos and solution-focused mission. Ben Hurley is CEO of the Centre.

Progress to date

The NDRC has recruited several key members during the period, including two Translational Research Leaders (Kevin Jennings and Kevin Smith) who are equivalent to Principal Investigators and are distinguished by their strong emphasis on achieving early adoption of innovative technology in the marketplace. Business analysts (Daniel Crowley, Majella Murphy and Kathryn Parkes) have also been recruited to work with project teams, placing a strong focus on business modelling and marketplace research.

The NDRC has launched three calls for Expressions of Interest in Collaborative Translational Research in Digital Technologies. Targeting academic, private sector and social bodies, each call has attracted an increasing number of responses,

resulting in a strong base from which to select projects.

Future objectives

Contractual agreements have been finalised with a number of projects and these are due to kick-start over the coming weeks. One such project, LiDAR, submitted by Dr Debra Laefer, UCD School of Architecture, Landscape and Civil Engineering, will look at new methods of representing, modelling, interpreting and data mining remotely sensed imagery and LiDAR point clouds for a new generation of engineering-enabled city modelling. Another project, Inside Out, focusing on the area of health awareness and childhood obesity, will create an exciting learning-games module for children, enabling them to develop an understanding of the human body and health.

Runner-up in the 2008 Images of Research Competition - 'Point of Reduction' was created by Triona Nicholl, UCD School of Archaeology



National Institute of Bioprocessing Research and Training (NIBRT)

The National Institute of Bioprocessing Research and Training (NIBRT) is a consortium of UCD, TCD, DCU and IT Sligo which is funded by IDA Ireland with a mission to support Ireland's bioprocessing industry by providing world-class training and research solutions in state-of-the-art facilities.

Progress to date

Over the past 12 months NIBRT has made notable progress, recognised by the approval of the NIBRT Phase 2 Proposal by IDA Ireland and government.

In April 2008, Dr Maurice Treacy was appointed CEO of NIBRT. Dr Treacy joined NIBRT from SFI where he held the position of Life Sciences Director. NIBRT's management team was completed with the appointment in May 2008 of Dr Ian Nelligan as NIBRT's Training Director. Dr Nelligan joined NIBRT from Wyeth where he held the position of Associate Director of Technical Operations.

In May 2008, NIBRT announced a research collaboration with USA pharmaceutical giant Eli Lilly. This research partnership, with Professor Pauline Rudd and the Dublin–Oxford Glycobiology Laboratory at the UCD Conway Institute, will focus on the glycosylation of biological products. In addition, NIBRT has developed research programmes with pharmaceutical companies such as Organon, Schering Plough, Astellas, Shire and Merck Serono.

NIBRT's success in developing research collaborations with industry has been based on a platform of world-class research, which has been recognised over the past year by successful grant applications to EU Framework 7, Cancer Research Ireland, Enterprise Ireland and SFI.

NIBRT has also signed contracts to provide customised, practical training solutions to the biopharmaceutical industry, including Pfizer, Eli



Computer image of the new NIBRT facility planned for the Belfield campus

Lilly and Wyeth. These training solutions are augmented by NIBRT's academic education programme and, in particular, the continued success of the UCD MEngSc in Biopharmaceutical Engineering.

NIBRT was awarded full planning permission for its proposed facility on the Belfield campus, to be located at UCD's Fosters Avenue entrance. The European tender process for the design of the facility has been completed. It is anticipated that construction will commence in spring 2009 and the building will be fully operational in autumn 2010. The NIBRT building will provide state-of-the-art research and training facilities, including a bioprocessing pilot plant.

A key component of NIBRT's success has been the development of partnerships with colleagues in Higher Education Institutes (HEI). In April 2008, NIBRT supported the launch of GlycoSciences Ireland, which is an all-island initiative to create a dynamic scientific community between industrial and academic stakeholders.

Early cancer detection

A research team from the NIBRT Dublin–Oxford Glycobiology Laboratory at UCD has come up with a system that may pinpoint potential 'biomarkers' of early forms of cancer. The researchers have achieved this by looking at the structures of specific sugar molecules, which are attached either to proteins made by cancerous cells or to proteins involved in the host response. Professor Pauline Rudd explained that they have found alterations in sugars attached to proteins in blood serum from all cancers they have looked at, and some of these appear to be early markers of the disease processes. She added that they also have been able to isolate several sugar-linked variants of particular proteins which are associated with different types of cancer, including prostate, pancreatic, ovarian and breast cancers.

Technology Research for Independent Living (TRIL)

The TRIL Centre is a research collaboration between industry and academic partners including UCD, TCD, NUIG and Intel to develop technologies for successful ageing. The Centre has dedicated laboratories at Intel and in each of the universities involved, driving two-way knowledge and technology transfer to address the physical, cognitive and social consequences of ageing. It develops innovative technologies to help people 'age in place' wherever they choose to live. The project, which is co-funded by Intel and the IDA, was launched in January 2007 with a €23 million investment. TRIL Centre Directors are Professor Paddy Nixon of UCD and Dr Terry Dishongh of Intel. Professor Nixon is also Co-Principal Investigator for the Technology Platform, along with Dr Aaron Quigley, UCD School of Computer Science and Informatics, and Dr Mick McGrath of Intel.

Progress to date

TRIL's approximately 70 personnel are spread across the participating universities, Intel Ireland and clinical sites such as the TRIL Clinic at St James's Hospital, Dublin. The TRIL Technology Platform team (TTP) has relocated to the UCD Complex and Adaptive Systems Lab (CASL).

Achievements at the TRIL Centre during the past year include:

- The release of the first full version of the BioMOBIUS Research Platform on 22 April 2008;
- Presentation by Professor Paddy Nixon at the SPARC/CARDI conference in Belfast on 10 June 2008;

- Presentation by the TTP Team at the Intel Research Day in California on 11 June 2008;
- TTP Team delivered a workshop at the IEEE EMBC08 conference in Vancouver, Canada on 20 August 2008.

Future objectives

- TRIL TTP hosting an international BioMOBIUS workshop in UCD on 10 September 2008;
- Finalisation of TRIL home deployments 2008 for the fall, cognitive and social strands; driven by the TTP Technology development.

Institute of Biomedical Informatics

The Institute of Biomedical Informatics (IBI) was established in 2007 as an all-Ireland platform for research, education and enterprise in the science of biomedical informatics. This Institute is a partnership of leading academic institutions, industry-partners and the public sector. The foundation partners led by UCD include NUIG, TCD and QUB, along with Hewlett-Packard Galway. The Director of the Institute is Professor Paddy Nixon. IBI supports and enables the field of translational research that aims to bridge the gap between the delivery of healthcare and fundamental biomolecular science.

Progress to date

The IBI Graduate Board developed a structured PhD programme for IBI Graduate Scholars that will focus on: cross-institutional training for generic and thematic skills; and cross-institutional placements and industry internships.

The IBI is currently supporting two funding applications to pursue its objectives comprising:

- A North/South proposal in Bioinformatics led by QUB;
- A Principal Investigator proposal to SFI by NUIG in the area of Virtual Glycan Array Development and Carbohydrate Receptor Engineering.

The IBI established a PhD Scholars programme. Currently six PhD students are conducting research in the IBI core areas of Bioinformatics

and Health Informatics, and are located across UCD, QUB, TCD and NUIG. The topics of research are: Combining multiple methods of predicting the replication of human genes; Automatic computer assisted analysis of cancer biopsies; Analysing complex data from anatomy research; Enhancing cancer detection techniques that use Ultra Wide Band (UWB) radar; Assessing data quality in healthcare records; and Tracking biological samples across multiple locations.

Future objectives

- Recruitment of a further six PhD students and the formalisation of the IBI Structured PhD Programme.

NovaUCD

A major strategic objective for UCD is to contribute to the social, economic and cultural objectives of Ireland's knowledge society. NovaUCD, the university's Innovation and Technology Transfer Centre, strives to meet this objective by:

- Commercialising the university's intellectual property outputs;
- Supporting entrepreneurship and the development of campus companies;
- Facilitating partnerships between the university and industry;
- Promoting a culture of innovation and entrepreneurship.

The Director of NovaUCD is Dr Pat Frain.

In September 2007, Professor Mark Keane was appointed Vice-President for Innovation and launched a major consultation and review process of UCD's innovation strategy.

Progress to date

NovaUCD's technology transfer team received a major boost with the investment by Enterprise Ireland of nearly €3 million over a five-year period to expand staff numbers. Five new staff members, consisting of three experienced technology transfer professionals, a contracts manager and administrative support, joined NovaUCD. This investment allows NovaUCD to meet the increasing innovation outputs arising from the rapid expansion in research income at UCD in recent years.

In the past year, 49 invention disclosures were reported to NovaUCD and 23 priority patent

applications were filed across all areas of life sciences, engineering and information and communication technology. In addition, five Patent Co-operation Treaty (PCT) applications and seven national/regional patent applications were filed. This intellectual property is also beginning to be exploited in the eight licence agreements signed with a range of indigenous and international companies.

In addition, at year end, 23 knowledge-intensive companies, occupying over 90% of the available incubation space, were located in NovaUCD.

Twelve companies have now also graduated from

ChangingWorlds wins Innovation Award



ChangingWorlds, the UCD spin-out whose technology is used by 50 mobile network operators worldwide and impacts daily on the 'usability experience' of hundreds of millions of phone users on the mobile internet, won the inaugural Irish Technology Leadership Group (ITLG) / *The Irish Times* Innovation Award.

The ITLG, an independent organisation comprising a number of high-level technology leaders in Silicon Valley, established this award to recognise

an innovative Irish company that it believed has the most potential to succeed on the international stage. ChangingWorlds was also ranked Number 8 in the 2007 Deloitte Technology Fast 50, a ranking of the 50 fastest-growing technology companies in Ireland.

ChangingWorlds was founded in 1999 by Professor Barry Smyth and Paul Cotter as a spin-out from UCD School of Computer Science and Informatics. It now employs over 140 people who are based in offices in Dublin, including its Advanced Research Centre at NovaUCD, as well as in Malaysia and the USA.

David Moran, CEO, ChangingWorlds

*Dr Denise Cornally and
Dr Anna Edvardsson,
Development Scientists,
Enzolve Technologies*



NovaUCD to make way for the next generation of start-up companies.

This year saw the pioneering development of courses on innovation and entrepreneurship being included in the newly structured PhD programme, as part of the Transferable Skills for Graduate Research Students Programme. These courses, co-developed by NovaUCD and the UCD Michael Smurfit Graduate Business School, attracted over 40 students and are seen as playing a key role in exposing graduate students to the commercial possibilities of their research.

Several NovaUCD client companies enjoyed notable achievements during the year. AP EnvEcon, a new spin-out company from the Environmental Economics Unit of UCD's School of Geography, Planning and Environmental Policy, was the overall winner of the NovaUCD 2007 Campus Company Development Programme (CCDP).

BiancaMed received £250,000 sterling from Invest NI towards the establishment of an R&D centre at the Queen's University Institute of Electronics, Communications and Information Technology, while Duolog Technologies opened a new office in California as part of its global expansion plans.

Enzolve Technologies received substantial investment from Enterprise Ireland and private investors to enable it to commence production of 'NeoScreenPak', a new range of diagnostic kits for screening a variety of disorders that affect newborn infants.

Evolution launched TempSheets.com, an easy-to-use online system designed for recruitment

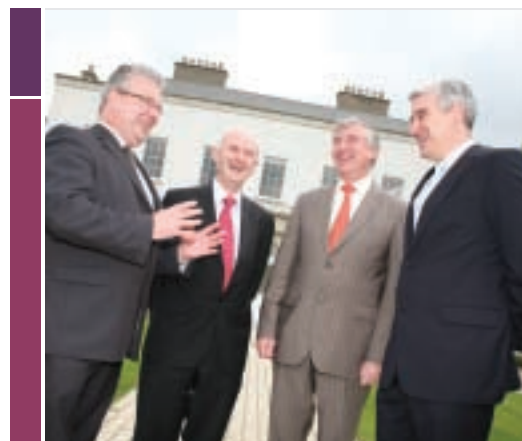
agencies that place temporary staff, and gsmExchange.com signed a major deal with Vodafone to develop a business-to-business platform that enhances the purchase and distribution of Vodafone's mobile handsets worldwide.

HeyStaks was one of four new companies to share the Eircom €100,000 Web Innovation Fund, while Q-Validus launched Spreadsheet Safe, an innovative training and certification programme designed to assist businesses in reducing the risks associated with poor spreadsheet design, use and control.

Demonstrating NovaUCD's international leadership in technology transfer, Dr Pat Frain was appointed Chair of ProTon Europe. ProTon Europe is the pan-European network of knowledge-transfer offices, national knowledge transfer associations and companies affiliated to universities and other public research organisations. With over 250 direct member institutions in 28 European countries and 10 national partner associations, it reaches out to over 600 European universities.

Future objectives

NovaUCD's vision is to be an international leader in the commercialisation of research and other knowledge-intensive activity for the benefit of Ireland's economy and society. The implementation of the new UCD Innovation Strategy will see the further development of the Belfield Innovation Park, which will enable more enterprises to locate on campus. International experience shows that this is the next step Ireland must take in developing an innovation culture and, as in the past, NovaUCD intends to be in the vanguard of these advances.



*Dr Pádraic Conway, UCD
Vice-President University
Relations; Dr Pat Frain,
Director, NovaUCD; Dr
Jimmy Devins TD, Minister
for Science, Technology
and Innovation and
Professor Mark Keane,
UCD Vice-President
for Innovation pictured
during Minister Devins'
visit to NovaUCD and the
UCD Conway Institute
of Biomolecular and
Biomedical Research in
July 2008*