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Clár Ábhair

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Executive Summary

The annual report for 2010 covers a unique time not only in the life of the Dublin Institute for Advanced Studies (DIAS) but also the wider field of education and research in Ireland. In regard to DIAS, 2010 saw the appointment of a new Chairman of Council, Dr. Vincent Cunnane. Dr. Cunnane succeeds Prof. Dervilla Donnelly who was first appointed as Chairman of Council in 1995. Over the following fifteen years she was responsible for many positive developments and contributed in large measure to its growth and development throughout that period. Her contribution is greatly valued by the staff and Boards of the Institute's three Schools. The appointment of Dr. Cunnane comes at an important time in the life of DIAS and his experience and leadership is welcomed by all. In addition to the appointment of Dr. Cunnane, Government also appointed new Boards to each of the Institute's three constituent Schools. The important work that was carried out by the members of the previous Boards in safeguarding both the standard of research that was carried out in each School and the independence of the Schools must be recognised.

During 2010 the Chairman of the Audit Committee, Prof. David Spearman also retired. Prof. Spearman was the first Chairman of the Audit Committee and provided an invaluable service as he steered the Committee through its early existence. DIAS benefited greatly from his contribution and as a result of his work the Committee is now well established as an important part of the overall governance of DIAS.



The Chairman of Council, Dr. Vincent Cunnane at an event in celebration of the 70th Anniversary of the foundation of DIAS.

Cathaoirleach na Comhairle, An Dr. Vincent Cunnane i láthair ag féile chomórtha seachtó bliain na hInstitiúide.

In 2010, DIAS, together with almost all other State funded bodies, was obliged to deal with a reduction in the level of pay and non-pay funding that was available from Government. This resulted in the loss of a number of academic and non-academic positions and a cut-back in activities that would normally be undertaken throughout the year. It also placed considerable pressure on remaining staff. Despite these difficulties, 2010 was a very successful year in the life of DIAS. The level of research activity and standard of research remained high as did the rate of publications in all Schools. The Schools were very successful in regard to grant applications for external funding. In addition to the research activities, a number of other measures were successfully completed during the year e.g. the setting-up of an archive centre, the development of a new website and the completion of the renovation work at Observatory House in Dunsink. None of this would have been possible without significant effort from both the research staff of the three Schools and Administration.

The scale of the financial difficulties facing us at the moment means that over the next three to four years there will be a reduction in the level of Government funding for both fundamental and applied research. The implementation of the terms of the Employment Control Framework will reduce the number of staff available to carry out and support the research effort in DIAS. Against this background it cannot be emphasised too strongly that we in DIAS will take the necessary steps to ensure that the taxpayer receives value for money for the investment that is made in our research work. There is no doubt about the commitment of the staff of DIAS to this effort.

Achoimre Feidhmiúcháin

Clúdaíonn tuairisc bhliantúil 2010 tréimhse uathúil, ní hamháin i saol na hInstitiúide Ard Léinn Bhaile Átha Cliath (DIAS) ach i réimse níos leithne an oideachais agus an taighde in Éirinn. Maidir le DIAS, ceapadh Cathaoirleach Comhairle nua i 2010, An Dr Vincent Cunnane. Tagann an Dr Cunnane i gcomharbacht ar an Oll. Dervilla Donnelly a ceapadh ar dtús ina Cathaoirleach Comhairle i 1995. Thar na cúig bliana déag dar gcionn ba í ba chion le go leor forbairtí dearfacha agus chuir sí go mór lena bhfás agus lena bhforbairt i rith na tréimhse sin. Is mór a hionchur ag foireann agus ag trí bhoird Scoileanna na hInstitiúide. Tagann ceapachán an Dr Cunnane ag am tábhachtach i saol na hInstitiúide agus tá fáilte fhorleathan roimh a chuid taithí agus a chuid ceannaireachta. Chomh maith le ceapachán an Dr Cunnane, cheap an Rialtas bord nua do gach ceann de thrí chomhScoileanna na hInstitiúide. Caithfear aitheantas a thabhairt don obair thábhachtach a rinne baill na n-iarbhorid maidir le caighdeán an taighde a rinneadh i ngach Scoil agus neamhspleáchas na Scoileanna a chur ar lámh shábháilte.

D'éirigh Cathaoirleach an Choiste Iníochóireachta, an tOllamh David Spearman, as i 2010 freisin. Ba é an tOllamh Spearman an chéad Chathaoirleach a bhí ar an gCoiste Iníochóireachta agus sholáthraigh sé seirbhís gan cuntas agus an Coiste nua á stiúradh aige trína luathchéimeanna. Bhain DIAS leas mór as a chuid taithí agus mar thoradh ar a chuid oibre tá an Coiste bunaithe anois mar chuid thábhachtach de rialachas ginearálta DIAS.

Maraon le beagnach gach uile eagraíocht a chistíonn an Stát, bhí ar DIAS deighleáil i 2010 le cistiú laghdaithe ón Rialtas le haghaidh pá agus nithe eile. Mar thoradh ar seo, cailleadh roinnt postanna acadúla agus neamhadúla agus gearradh siar ar ghníomhaíochtaí a dtugtar fúthu de ghnáth i rith na bliana. Chuir seo brú go leor ar an bhfoireann atá fágtha. In ainneoin na ndeachrachaí seo, bliain rathúil ba ea 2010 i saol an DIAS. Lean gach Scoil ar aghaidh le h-ardleibhéal gníomhaíochta taighde agus le hardchaighdeán taighde agus le ráta ard foilseachán. Bhí ardrath ar na Scoileanna freisin maidir le hiarratais ar chistíú seachtrach. Chomh maith leis na gníomhaíochtaí taighde cuireadh críoch rathúil i rith na bliana le go leor beart eile, m.sh., bunaíodh an lárionad cartlainne, forbraíodh suíomh Gréasáin nua, agus críochnaíodh an obair athchóirithe ar Theach Réadlainne Dhún Since. Ní bheadh sé seo go léir indéanta murach an iarracht shuntasach a thug foirne taighde na dtrí Scoil agus Riarachán araon.

Ciallaíonn scála na ndeachrachaí airgeadais atá romhainn faoi láthair go mbeidh laghduithe breise ar leibhéal cistithe ón Rialtas don bhuntaighde agus don taighde feidhmeach araon go ceann trí nó ceithre bliana amach anseo. Laghdóidh cur i bhfeidhm an Chreatlaigh Stiúrtha Fostaíochta an líon foirne a bheidh ar fáil chun an iarracht thaighde a tharlaíonn i DIAS a dhéanamh agus chun tacú léi. Aithnímid na deacrachaí eacnamaíochta atá ann faoi láthair agus táimid réidh lenár gcion a dhéanamh chun na dúshláin atá romhainn a sháru. Le seo mar chúlra, ní féidir a bhéimíú go ró-láidir go ndéanfaidh DIAS gach rud is gá chun luach a chuid airgid a fháil don cháiniócóir as a chuid infheistíochta inár nInstitiúid. Chomóramar 70 bliain bhunú an DIAS i rith 2010. Ag an am a bunaíodh í bhí acmhainní chomh gann is atá siad faoi láthair. Mar sin féin, in ainneoin na ndeachrachaí a bhí ann ag am a bunaithe, tháinig DIAS slán astu agus níl aon amhras orm ná go sáróidh sí na fadhbanna atá romhainn faoi láthair agus go leanfaidh sí lena ról tábhachtach sa bhuntaighde in Éirinn agus thar lear.

School of Celtic Studies

A reception was held on 10 June to mark the publication of *The Wedding Poems of Dáibhí Ó Bruadair* by Margo Griffin-Wilson. The book presents a new edition and translation of three Irish wedding poems from the 17th century, two of them by Ó Bruadair who celebrates wedding festivities at the home of his patron in Cahirmoyle, Co. Limerick.

A third poem by a lesser known author with connections to prominent Ulster families is included with extensive commentary in an appendix. The book was launched by the Director.

On 19 November the Director launched *The Book of the O'Conor Don: Essays on an Irish manuscript*, edited by Pádraig Ó Macháin. This volume contains the proceedings of a conference organised in May 2009 to celebrate the digitisation of the Book of the O'Conor Don by the manuscript digitisation project of the School of Celtic Studies, Irish Script on Screen (ISOS). Ten papers address different aspects of the codicology and history of the manuscript, its contents, script, sources, themes, historical context and scholarly legacy. A special feature of the production (typeset in the School by the editor) is the inclusion of high-quality digital illustrations from the manuscript to accompany several of the contributions. On this occasion also the School marked the 70th anniversary of DIAS with the launch of Volume XXVI of the School journal *Celtica*, edited by Fergus Kelly and Malachy



Professor Fergus Kelly, Professor Malachy McKenna and Professor Pádraig Breatnach with *Celtica* Vol. XXVI, marking the 70th Anniversary of DIAS.

An tOllamh Fergus Kelly, An tOllamh Malachy McKenna agus an tOllamh Pádraig Breatnach le *Celtica* Iml. XXVI, mar cheiliúradh ar chothrom 70 bliain ó bunaíodh Scoil an Léinn Cheiltigh.

McKenna. There are fourteen contributions, of which several were written by members of the School and others by scholars from Australia, Germany and Sweden. The volume also includes an up-to-date report by Nora White and Fergus Kelly on work in progress in the School on the 'Ogham in 3D Pilot Project' (with plates).

The development of the School's ISOS project continued under the direction of Pádraig Ó Macháin. Digitisation was carried out on five manuscripts (three of them medical) from the Royal Irish Academy's collection. Collaboration with the National Library of Scotland was progressed, and digitisation of the 16th century Book of the Dean of Lismore was completed. The images are now on the ISOS website accompanied by a digital version of the catalogue description of the manuscript by Ronald Black. Work continued on digitizing a dozen more manuscripts from the same collection. The State Library of Australia cooperated in digitizing three Irish manuscripts for future display by ISOS. Agreement was reached with the authorities at the Boole Library, University College Cork, establishing a pilot project for the digitisation, processing and display of five Irish manuscripts from that collection in December.

Ongoing demand for the School's publications made it necessary to reprint the following: *Early Irish history and mythology* (T. F. O'Rahilly); *Audacht Morainn* (Fergus Kelly); *A grammar of Old Irish* (R. Thurneysen, trans. by D.A. Binchy & O. Bergin); *Togail Bruidne Da Derga* (E. Knott); *Itinerarium Symonis Semeonis ab Hybernia ad Terram Sanctam* (M. Esposito); *Branwen Uerch Lyr* (D. S. Thompson); *Pwyll Pendueic Dyuet* (R. L. Thomson); *The poems of Taliesin* (I. Williams). The works were seen through the press by Michelle O Riordan (Publications Officer) and Eibhlín Nic Dhonncha (Administrator).

In the Library current and retrospective cataloguing continued under the direction of Librarian Margaret Kelly, with the assistance of Library Assistant Órla Ni Chanainn. Links to online journals were added to the catalogue. The map collection was re-housed and re-classified. The library became a participating member of ALCID (a multi-institutional cooperative access scheme). The Library committee was established and met on four occasions. During Library Ireland Week the Library welcomed a group of 30 students from Bonn University.

Scoil an Léinn Cheiltigh

Ag fáiltiú i Scoil an Léinn Cheiltigh ar an 10 Meitheamh seoladh an leabhar *The wedding poems of Dáibhí Ó Bruadair* le Margo Griffin-Wilson. Tá eagar curtha anseo ar thrí cinn de dhánta pósta ón 17ú céad, maraon le haistriúchán agus tráchtareacht iomlán. Dáibhí Ó Bruadair a chum péire de na dánta ag comóradh imeachtaí dhá bhainis i dtigh pátrúin leis i gCathair Maothail, Co. Luimnigh. Le Cúige Uladh a bhaineann an tríú dán atá curtha in eagar mar aguisín leis na dánta eile maraon le nótaí mionchúrsacha. Gabhann réamhrá leis an saothar a chuireann síos go cuimsitheach ar stair an chineál litríochta a mbaineann na téacsáí leis, ar a gcáilíocht agus ar a gcúlra stairiúil agus sóisialta. Seo thíos sliocht as aitheasc an stiúrthóra ar an ócáid seolta:

*'Dlighthidh gach maith a maíomh. Ó Dháibhí Ó Bruadair na focail ag tagairt don chomaoín a chuir a phátrún Anna Ní Urthaile air i gcaitheamh a shaoil – b'í Anna ba mháthair don mbeirt bhan de na Búrcaigh Úna agus Eilíonóir a bhfuil comóradh ar a bpósadh sna dánta atá in eagar sa leabhar álainn nua-foilsithe seo le Margo Griffin-Wilson, arb é mo chúram-sa é a sheoladh go hoifigiúil inniu. Is éacht intleachta atá idir dhá chluadh an leabhair seo idir dhoimhneas tuisceana, máistriúlacht teanga, agus géire agus samhlaíocht an bhreithiúntais liteartha a théann go smior na filíochta. Agus tá an méid sin go léir curtha i láthair i stíl scríbhneoireachta atá gléineach pléisiúrtha. Tréithe eile atá chun tosaigh go háirithe in obair na heagarthóireachta sa tsaothar is ea an chreidiúint a tugtar ann ó thús i leith shaothar an chéad eagarthóra a chuir na téacsanna seo ar fáil nach mór céad bliain ó shin díreach, an tAthair Eoin Mac Fhir Léinn (1870-1950) (John Mac Erlean SJ), ar fhoilsigh Cumann na Sgríbhneann Gaedhilge a shaothar *Duanaire Dháibhídh Uí Bhrudair* ina thrí imleabhar idir 1910-17.'*

Ag tabhairt amach ar an 19 Samhain sheol an stiúrthóir *The Book of the O'Conor Don: Essays on an Irish manuscript*, curtha in eagar ag Pádraig Ó Macháin. Cnuasach d'aistí é seo atá bunaithe ar léachtaí a thug deichniúr scoláirí ag comhdháil i Scoil an Léinn Cheiltigh i mí Bealtaine 2009. Pádraig Ó Macháin a d'eagraigh an chomhdháil mar cheiliúradh ar an digitiú a deineadh ar leathanaigh na lámhscríbhíne Leabhar Uí Chonchobhair Dhoinn don tionscnamh Meamram Páipéar Ríomhaire. Tá an lámhscríbhinn ar na foinsí is tábhachtaí dá bhfuil ann d'fhilíocht chlasaiceach na Gaeilge. Pléann na haistí le gnéithe éagsúla de stair agus comhdhéanamh na lámhscríbhíne. San áireamh tá an cur le chéile agus cúrsaí scríopta, leagadh amach an ábhair, tuairisc an scríobhaí agus a phátrúin, cáilíocht seachadaíochta na dtéacsáí agus a ngaol le foinsí eile, an téamaíocht agus comhthéacs stairiúil

an tsaothair. Díol suntais faoi leith is ea ardháilíocht na n-íomhánna digiteacha ón lámhscríbhinn atá ag gabháil le roinnt de na haistí sa leabhar. (An t-eagarthóir féin a réitigh an clóchur i Scoil an Léinn Cheiltigh.) Ar an ócáid chéanna foilsíodh imleabhar XXVI d'iris léannta na Scoile *Celtica*, curtha in eagar ag Fergus Kelly agus ag Malachy McKenna. Cuireadh amach an t-imleabhar seo le banda comórtha fillte timpeall air mar cheiliúradh ar chothrom 70 bliain na hInstitiúide. Tá ceithre cinn déag d'ailt i gcló san imleabhar agus réimse leathan ábhair pléite iontu ag scoláirí ó chian (An Astráil, An Ghearmáin, An tSualainn) agus ó chongar (baill de Scoil an Léinn Cheiltigh san áireamh). Tá tuarascáil speisialta ag deireadh an imleabhair ó Nora White agus Fergus Kelly ar fhorbairt an tionscnaimh *Ogham-3D* (maraon le plátaí).

Leanadh ar aghaidh d'obair an tionscnaimh Meamram Páipéar Ríomhaire (stíuraithe ag Pádraig Ó Macháin) i rith na bliana. Deineadh digitiú ar chúig cinn de lámhscríbhinní as cnuasach Acadamh Ríoga na hÉireann, ar lámhscríbhinní leighis trí cinn díobh. Tharla an-dul chun cinn sa scéim chomhoibríthe atá ar bun le Leabharlann Náisiúnta na hAlban nuair a críochnaíodh an próiseas digitithe ar leathanaigh Leabhair Deaghan Lios Mòr (ón 16ú céad). Tá teacht ar na híomhánna ar shuíomh lín an tionscnaimh MPR, maraon le leagan digitithe den chur síos catalóige ar an lámhscríbhinn le Ronald Black. Deineadh digitiú ar dhosaen eile de lámhscríbhinní sa chnuasach céanna chomh maith. Tháinig toradh ar chomhaontú leis an State Library of Australia a chuaigh chun cinn le próiseas digitithe i gcás trí cinn de lámhscríbhinní atá i gceist a chur ar teaspáint ar shuíomh lín MPR amach anseo. Tá socrú i gcrích mar scéim phiolóiteach idir Scoil an Léinn Cheiltigh agus údarás Leabharlann Boole, Coláiste Ollscoile Chorcaí, go ndéanfar digitiú ar chúig cinn de lámhscríbhinní a ndéanfar próiseasáil orthu agus a chuirfear in airde ar shuíomh lín na Scoile (MPR).

De bharr an éilimh a bhíonn go leanúnach ann ar fhoilseacháin na Scoile cuireadh athchló ar na leabhair seo leanas i 2010: *Early Irish history and mythology* (T. F. O'Rahilly); *Audacht Morainn* (Fergus Kelly); *Togail Bruidne Da Derga* (E. Knott); *Itinerarium Symonis Semeonis ab Hybernia ad Terram Sanctam* (M. Esposito); *A grammar of Old Irish* (R. Thurneysen, D. A. Binchy, O. Bergin); *Pwyll Pendueic Dyuet* (R. L. Thomson); *The poems of Taliesin* (I. Williams); *Branwen Uerch Lyr* (D. S. Thomson).

Lean an leabharlannaí Margaret Kelly agus an cúntóir leabharlainne Órla Ní Chanainn den obair chláráithe ar shealúchas na leabharlainne idir shean agus nua, agus soláthraíodh breis nascanna le hirísí ar-líne áirithe.

School of Celtic Studies (continued)

This year's Statutory Public Lecture of the School of Celtic Studies was given by Professor Damian McManus of Trinity College, Dublin. The lecture entitled 'The Bardic Poetry Database: opportunities and challenges for future scholarship' was delivered at University College Dublin, Friday 19 November, before a large audience as part of the Annual TIONÓL.

The Annual TIONÓL of the School of Celtic Studies took place on 19-20 November 2010. It was organised by Clodagh Downey assisted by Roisin McLaughlin, Alexandre Guilarte, and the School Administrator Eibhlín Nic Dhonncha. It attracted a very large attendance with numbers exceeding one hundred on both days. Papers on various aspects of Celtic Studies were delivered by twenty speakers from the Netherlands, Norway, Wales, England, and Ireland. Alexandre Guilarte continued to work on the Fourth Volume of the Bibliography of Irish Linguistics and Literature and updated and maintained the online version, e-BILL. Liam Breatnach continued to direct a diplomatic edition of the *Leabhar Breac* with the Bergin Fellows and O'Donovan Scholars.

A highlight of the year's research was the completion of full descriptions of some twenty of the thirty or so medical manuscripts in TCD Library as part of the ongoing work of cataloguing these by Aoibheann Nic Dhonnchadha. The descriptions have been digitized and installed to accompany images of the manuscripts on the School's ISOS website. Aoibheann Nic Dhonnchadha also worked on the sources of a major Galenic commentary found in a fifteenth-century manuscript in TCD Library (no. 1299) as a contribution to a specialist international seminar on the historical significance of the writings of the Greek physician Galen (c. 130-c.201) due to be held in TCD as part of tercentenary celebrations by the School of Medicine (June 2011).

Liam Breatnach continued work on his edition of the Old Irish law-tract *Córus Bésgnai*, as well as collecting material for his projected *Grammar of Middle Irish*. He co-edited *Ériu* vol. 60 (published by the Royal Irish Academy). P. A. Breatnach revised and added chapters to his monograph *The Four Masters and their works: a team enterprise* (for publication 2011); advanced the Catalogue of Irish Manuscripts in Brussels, and conducted further textual work on *Chronicle poems of the Nine Years' War* (Dubhthach Óg Ó Duibhgeannáin). His edition of the Irish apocryphal text *Airdena inna cóic lá ndéc ria mbráth* was finalized;

he worked on an edition of *Mo léansa an galar so do shearg mé i sírghéibheann* (Séamas Beag Mac Coitir) for the series 'Togha na hÉigse 1700-1800' (*Éigse* and *Celtica*); he also edited a group of texts on the death of Sir James Cotter (1720). He was editor of *Éigse: A Journal of Irish Studies* vol. XXXVII (National University of Ireland) (published in November). Fergus Kelly continued with his edition of the Legal Treatise attributed to Giolla na Naomh Mac Aodhagáin (*Corpus Iuris Hibernici* ii 691.1-699.4). He also advanced work on his edition of an Old Irish text on legal disputes within marriage (*Corpus Iuris Hibernici* i 144.5-150.16). He co-edited *Celtica* vol. XXVI (published November).

Clodagh Downey's research concentrated on the poetic corpus of the Middle Irish poet Cúán ua Lothcháin and involved consultation and transcription of many manuscripts containing his poetry, edition and collation of the transcriptions, translation and annotation of the texts and study of the life and background of the poet. Malachy McKenna worked to revise a draft of *The Irish of Rann na Feirste: a phonemic study*, identifying lacunae which were remedied with the aid of speech recordings and questionnaires put to informants on field trips to Rann na Feirste. The work also included observation of visual cues of speech based on video recordings of speakers from which still-photographs were produced to enable capture of the positions of the lips, the teeth and the tongue that characterise a given segment. He co-edited *Celtica* vol. XXVI (published in November). Pádraig Ó Macháin contributed to and edited the proceedings of the Book of the O'Conor Don Conference (2009). He provided descriptions for the ISOS project of some of the Australian manuscript material now digitised, and of ancillary documents from the private collection in Clonalis House. Preliminary research was carried out on uncatalogued manuscripts in the Royal Irish Academy. He also completed a study of palaeographical aspects of the Ó Cianáin manuscript in the UCD-OFM collection (A 21). He worked on unpublished remnants of the poetry of Tadhg Dall Ó hUiginn and on unpublished poems by Fearghal Óg Mac an Bhaird for separate publications. Michelle O Riordan completed a study of the emotive effect of use of the vocative case with the personal name in Irish poetry. She wrote a paper exploring the use made by historians of critical editions of Irish literary material and she also examined the emergence of a dual identity for Ireland in 18th century Irish literature.

Scoil an Léinn Cheiltigh (ar leanúint)

Deineadh athchlárú ar an gcnuasach léarscáileanna agus tugadh láthair nua dóibh mar a bhfuil siad curtha ar coimeád i dtaisceadán speisialta nua-cheannaithe. Tá rannpháirtíocht glactha ag an leabharlann anois mar bhall den scéim il-institiúideach ALCID. Bunaíodh coiste leabharlainne na Scoile agus bhí ceithre chruinniú ag an gcoiste nua i rith na bliana. Tháinig 30 mac léinn ó Ollscoil Bonn ar cuaird chun na leabharlainne le linn 'Library Ireland Week'.

Is é an tOllamh Damian McManus, Coláiste na Tríonóide, a thug Léacht Reachtúil Scoil an Léinn Cheiltigh (2010) uaidh sa Choláiste Ollscoile, Baile Átha Cliath, faoin teideal 'The Bardic Poetry Database: opportunities and challenges for future scholarship'. Reachtáladh an léacht mar chuid de Tionól 2010 agus bhí slua mór i láthair.

Bhí Clodagh Downey i bhfeighil an choiste a d'eagraigh Tionól 2010 ar an dá lá 19-20 Samhain, i gcomhpháirt le riarthóir Scoil an Léinn Cheiltigh Eibhlín Nic Dhonncha. B'iad baill eile an choiste ná Roisin McLaughlin, Alexandre Guilarte agus an stiúrthóir. Bhí slua mór (os cionn céad duine) i láthair ag na himeachtaí i gcaitheamh an dá lá agus léadh scór éigin páipéar ar a lán gnéithe éagsúla den léann Ceilteach. Bhí cainteoirí thar lear i láthair ó ollscoileanna san Ísiltír, an Bhreatain Bheag, an Iorua, agus Sasana, maraon le léachtóirí ó institiúidí ar fud na hÉireann.

Lean A. Guilarte ar aghaidh ag réiteach ábhair don cheathrú imleabhar den *Bibliography of Irish linguistics and literature* agus leis an obair ar an leagan leictreonach den saothar bibleagrafúil e-BILL, á iomlánú agus á choimeád suas chun dáta. Deineadh dul chun cinn leis an obair atá á stiúru ag Liam Breatnach ar eagrán dioplomáideach a réiteach den *Leabhar Breac* le rannpháirtíocht ó chomhaltaí Uí Aimirgín agus scoláirí Uí Dhonnabháin.

Tógadh céim shuaithinseach chun cinn i gcúrsaí taighde na bliana nuair a chuir Aoibheann Nic Dhonnchadha bailchríoch ar chuntaisí ag cur síos ar fiche éigin de na lámhscríbhinní leighis sa chnuasach i leabharlann Choláiste na Tríonóide. Tá leagan digitithe de na cuntaisí seo curtha ar fáil anois i dteannta leis na híomhánna ó na lámhscríbhinní ar shuíomh lín Scoil an Léinn Cheiltigh mar chuid den tionscnamh MPR.

Lean Liam Breatnach ag réiteach eagrán den tráchtas dlí Sean-Ghaeilge *Córus Bésgnai*, agus choinnigh sé ar aghaidh ag bailiú ábhair dá shaothar *Grammar of Middle Irish*. Chuir Pádraig Breatnach caibidlí breise le chéile dá shaothar ar lámhscríbhinní na gCeithre Máistrí. Lean sé dá thaighde ar chlár lámhscríbhinní Gaeilge na Bruiséile agus d'obair na heagarthóireachta ar an saothar *Chronicle poems of the Nine Years' War* (dánta le Dubhthach Óg Ó Duibhgeannáin).



Dr Margo Griffin-Wilson at the launch of her book 'The Wedding Poems of Dáibhí Ó Bruadair'.

An Dr Margo Griffin-Wilson ag seoladh a leabhair 'The Wedding Poems of Dáibhí Ó Bruadair'.

Chuir sé cóiriú ar eagrán den téacs apacrafúil *Airdena inna cóic lá ndéag ria mbráth* le haghaidh na sraithe *Apocrypha Hiberniae*; agus réitigh sé eagrán den dán *Mo léansa an galar so do shearg mé i sírghéibheann* (le Séamas Beag Mac Coitir) mar mhír eile sa tsraith téacsanna 'Togha na hÉigse 1700-1800' (*Éigse agus Celtica*). Chóirigh sé grúpa téacsáí ar bhás an Ridire Séamas Mac Coitir (1720). Mar Eagarthóir ar *Éigse: A Journal of Irish Studies* (Ollscoil na hÉireann) d'ullmhaigh sé imleabhar XXVII le haghaidh an chló (foilsithe i mí na Samhna). Lean Fergus Kelly ag ullmhú eagrán de thráchtas dlí atá leagtha ar Giolla na Naomh Mac Aodhagáin (CIH ii 691.1-699.4). Chuir sé chun cinn an obair atá ar siúl i mbun eagair a chur ar théacs Sean-Ghaeilge a phléann le cúiseanna dlí idir lánúna pósta (CIH i 144.5-150.16). Bhí sé ina chomheagarthóir ar *Celtica* iml. XXVI (foilsithe i mí na Samhna).

Dhírigh Clodagh Downey ina cuid taighde ar shaothar véarsaíochta an fhile Mheán-Ghaeilge Cúan ua Lothcháin, ag ceadú agus ag trasríobh as líon mór lámhscríbhinní ina bhfuil a chuid filíochta tagtha anuas, ag cur eagair ar na cóipeanna agus á gcur i gcomparáid, agus ag aistriú agus ag soláthar nótaí téacsúla ar mhaithe le léiriú a thabhairt ar bheatha agus cúlra an fhile thábhachtaigh seo. D'oibrigh Malachy McKenna ag leasú dréachta dá shaothar *The Irish of Rann na Feirste: a phonemic study* agus ag cur leis le cabhair ó thaifid a tógadh agus ó cheistneoirí a líonadh mar chuid den obair ghoirt don tionscnamh a cuireadh i gcrích i Rann na Feirste.

School of Celtic Studies (continued)



At the book launch of the publication *'The Book of the O'Conor Don'* was the editor Professor Pádraig Ó Macháin, and the Director of the School, Professor Pádraig Breatnach.

I láthair ag seoladh an leabhair 'The Book of the O'Conor Don' bhí an t-eagarthóir An tOllamh Pádraig Ó Macháin agus Stiúrthóir na Scoile, an tOllamh Pádraig Breatnach.

O'Donovan Scholar Helen Imhoff advanced her edition of *Fástini Airt meic Cuind*. Anna Matheson continued research for her doctoral dissertation on the depiction of madness as a form of purgative suffering in 10th to 12th century Irish and "Scottish" texts (*Mór Muman ocus Aided Chuanach meic Cailchine, Buile Shuibne, and Lailoken A*). She also prepared two articles on the subject of mental impairment in the vernacular law tracts. Eoin O'Flynn continued work on his PhD thesis. Freya Verstraten Veach was engaged in research on William 'Gorm' de Lacy for an article on early thirteenth-century history (for publication 2011). She also worked on the preparation of her thesis 'The Anglicisation of the Gaelic Irish nobility, c.1169 – c.1366' for future publication. Nora White continued work on the 'Ogham in 3D pilot project'; she conducted scanning of monuments in the National Museum of Ireland and at locations in Co Carlow and Co Wicklow. Roisin McLaughlin continued work on the edition of *Mittelirische Verslehren III* and *In Lebor Ollaman* as part of a project for IRCHSS Post-doctoral Fellowship.

Seminars were conducted in the School by Liam Breatnach on Early Irish law and on Old and Middle Irish verse and prose texts. The attendance included scholars from outside institutions including visiting scholars from overseas. Papers contributed by staff of the School at international and

national conferences and venues include the following: Liam Breatnach, 'St Patrick's Oath' (*Seventh Australian Conference of Celtic Studies*, The University of Sydney, 29 September-2 October); 'St Patrick's Oath' (Revised version) (*Tionól*, School of Celtic Studies 19 November); 'The early Irish law text *Senchas Már* and the question of its date' (*Quiggin Memorial Lecture*, University of Cambridge (2 December). P. A. Breatnach, 'Scribe and draughtsman in the Annals of the Four Masters' (*Societas Celtologica Nordica: 11th International Symposium*, Uppsala University, 15 May); 'Continuity and change: developments in the script and style of some early modern Irish autograph manuscripts' (*XVIIe Colloque International de Paléographie Latine*, Ljubljana, 7 September); 'Rannaíocht Mhór: gnéithe de stair na haiste' (Research Institute for Irish and Celtic Studies, University of Ulster, Coleraine, 27 April); C. Downey, 'Some observations on the transmission of the Dindshenchas', *Societas Celtologica Nordica, 11th International Symposium*, University of Uppsala (May); F. Kelly, 'The place of women in early Irish law, with special reference to the law of marriage' (*Seventh Australian Conference of Celtic Studies*, University of Sydney, September); Malachy McKenna: 'Is there vowel harmony in Irish and Scottish Gaelic?' (*Seventh Australian Conference of Celtic Studies*, University of Sydney September); Pádraig Ó Macháin, 'Tadhg Ó Cianáin and his manuscript' (400th anniversary conference in Mater Dei Institute of Education, Dublin (November); Anna Matheson, 'The worthiness of the mad penitent' (*Celtic Studies Association of North America 2010, Annual Meeting*, University of Notre Dame (April)); 'Ecclesiastical Allegory in the Depiction of Mór of Munster' (*24th Irish Conference of Medievalists. NUI Galway* (June); Nora White, 'Ogham in 3D – pilot project' *Tionól*, School of Celtic Studies (November).

P. A. Breatnach relinquished the editorship of *Éigse: A Journal of Irish Studies* (NUI) in November. He assumed the co-editorship of *Celtica* (with Fergus Kelly). Malachy McKenna relinquished the co-editorship of *Celtica* in November.

The death occurred of Professor Breandán Ó Buachalla, who held the post of Professor at the School of Celtic Studies 1973-78. Ar dheis Dé go raibh a anam.

Scoil an Léinn Cheiltigh (ar leanúint)

Bhain sé leis an obair seo físeáin a cheadú de na cainteoirí as ar glacadh grianghrafanna socra le hionchas suíomh na mbeol, na bhfiacal is na teanga le linn na hurlabhra a aithint sa tslánchruinne. Bhí sé ina chomheagarthóir ar *Celtica* iml. XXVI. Ina cáilíocht mar chomhalta Uí Aimhirgín (go dtí Aibreán 2010) lean Roisin McLaughlin ag réiteach eagrán de na téacsanna *Mittelirische Verslehren III* agus *In Lebor Ollaman*. Lean Aoibheann Nic Dhonnchadha ar aghaidh le clárú na lámhscríbhinní leighis i gColáiste na Tríonóide agus bhí sí ag gabháil do thaighde ar na foinsí a bhaineann le tráchtas tábhachtach i lámhscríbhinn ón 15ú céad i gcnuasach Leabharlainne Choláiste na Tríonóide (uimh. 1299) ar shaothar leis an liaigh Gréagach Galen (c. 130-201). Chuir Pádraig Ó Macháin eagar ar imeachtaí na comhdhála a tionóladh ar Leabhar Uí Chonchobhair Dhoinn (2009). Sholáthair sé cuntaisí don tionscnamh MPR ar lámhscríbhinní ón Astráil ar deineadh digitíú orthu, agus ar cháipéisí breise as sealúchas príobháideach úinéirí Leabhair Uí Chonchobhair Dhoinn i dTeach Chluain Mhalais, Co. Roscomáin. Scrúdaigh sé roinnt lámhscríbhinní ar iarratas ó Acadamh Ríoga na hÉireann atá fós gan chlárú. Chomh maith leis sin chríochnaigh sé taighde ar ghnéithe pailéagrafaíochta de lámhscríbhinn Thaidhg Uí Chianáin ón 17ú céad (A 21). Bhí sé ag gabháil do thaighde chomh maith ar iarsmaí neamhfhoilsithe d'fhilíocht Thaidhg Dhaill Uí Uiginn agus ar dhánta neamhfhoilsithe leis an bhfile Fearghal Óg Mac an Bhaird d'fhoilseacháin ar leithligh. Chríochnaigh Michelle O Riordan staidéar ar an éifeacht mhothálach a bhaineann le húsáid na míre gairmí le hainmneacha dílse san fhilíocht. Scríobh sí páipéar ag trácht ar an bhfeidhm atá bainte ag stairithe as eagráin chriticiúla d'ábhar liteartha Gaelige, agus rinne sí scrúdú ar an bhfianaise ar dhá chineál éagsúla Éireannachais i dtraidisiún liteartha an 18ú céad.

Lean Helen Imhoff (Scoláire Uí Dhonnabháin) ag obair ar a heagrán den téacs *Fástini Airt meic Cuind*. Lean Anna Matheson (Scoláire Uí Dhonnabháin) den taighde dá tráchtas dochtúireachta ag cur síos ar ghnéithe den mhíre dhaonna mar chineál d'fhulaingt phurgóideach i dtéacsáil idir an 10ú-12ú céad i litríocht na hÉireann agus na hAlban (*Mór Muman ocus Aded Chuanach meic Cailchine, Buile Shuibhne* agus *Lailoken A*). Réitigh sí dhá alt ar théamaíocht na buile sna tráchtas dlí. Bhí Eoin O'Flynn (Scoláire Uí Dhonnabháin) ag déanamh taighde dá thráchtas dochtúireachta 'Clann Cholmáin c. 550-916'. Bhí Freya Verstraeten Leach (Scoláire Uí Dhonnabháin) ag gabháil do thaighde ar Uilliam 'Gorm' de Lacy mar chuid d'alt ar stair an 13ú céad (le foilsíú 2011). Bhí sí ag obair freisin ag cur a tráchtas dochtúireachta i dtreo mar ábhar foilseacháin. Lean Nora White (Scoláire Uí Dhonnabháin) le hobair ar an tionscnamh píolóiteach 'Ogham-3D'; dhein sí scanadh ar roinnt cloch oghaim sa

Mhúsaem Náisiúnta agus in áiteanna i gCo. Cheatharlach agus i gCo. Chill Mhantáin.

Bhí Liam Breatnach i bhfeighil seiminéar sa Scoil ar sheandlithe na hÉireann agus ar théacsáil próis agus filíochta Sean- agus Meán-Ghaeilge i rith na bliana, agus bhí scoláirí ó institiúidí eile in Éirinn agus thar lear i measc an lucht freastail. Sholáthair baill foirne na Scoile páipéir agus léachtaí ag comhdhála náisiúnta agus idirnáisiúnta mar seo leanas: Liam Breatnach, 'St Patrick's Oath' (*Seventh Australian Conference of Celtic Studies*, The University of Sydney, 29 Meán Fómhair-2 D. Fómhair); 'St Patrick's Oath' (Leagan leasaithe) (*Tionól*, 19 Samhain); 'The early Irish law text Senchas Már and the question of its date' (*Quiggin Memorial Lecture*, Ollscoil Cambridge, 2 Nollaig). P. A. Breatnach, 'Scribe and draughtsman in the Annals of the Four Masters' (*Societas Celtologica Nordica: 11th International Symposium*, Ollscoil Uppsala, 15 Bealtaine); 'Continuity and change: developments in the script and style of some early modern Irish autograph manuscripts' (*XVIIe Colloque International de Paléographie Latine*, Ljubljana, 7 Meán Fómhair); 'Rannaíocht Mhór: gnéithe de stair na haiste' (Ionad Taighde do Léann na hÉireann agus don Léann Ceilteach, Ollscoil Uladh, Cúil Rathain 27 Aibreán); C. Downey, 'Some observations on the transmission of the Dindshenchas' (*Societas Celtologica Nordica, 11th International Symposium*, Ollscoil Uppsala, Bealtaine); F. Kelly, 'The place of women in early Irish law, with special reference to the law of marriage', *Seventh Australian Conference of Celtic Studies*, Ollscoil Sydney (Deireadh Fómhair); Malachy McKenna: 'Is there vowel harmony in Irish and Scottish Gaelic?' (*Seventh Australian Conference of Celtic Studies*, Ollscoil Sydney, Deireadh Fómhair); Pádraig Ó Macháin, 'Tadhg Ó Cianáin and his manuscript' (Coláiste Oideachais Mater Dei, Baile Átha Cliath, Samhain); Anna Matheson, 'The worthiness of the mad penitent' (*Celtic Studies Association of North America 2010*, Annual Meeting, Ollscoil Notre Dame, Aibreán); 'Ecclesiastical Allegory in the Depiction of Mór of Munster' *24th Irish Conference of Medievalists* (Ollscoil na hÉireann, Gaillimh, Meitheamh); Nora White, 'Ogham in 3D – pilot project' (*Tionól*, Scoil an Léinn Cheiltigh, Samhain).

I mí na Samhna d'éirigh Pádraig Breatnach as oifig mar Eagarthóir *Éigse* (ceapadh 1986), agus chuaigh sé i mbun eagarthóireachta ar *Celtica* i gcomhar le F. Kelly. D'éirigh M. McKenna as comheagarthóireacht ar *Celtica* i mí na Samhna.

Fuair an tOllamh B. Ó Buachalla bás i rith na bliana; bhí sé ar fhoireann na Scoile mar ollamh idir 1973-78. Ar dheis Dé go raibh a anam.

School of Cosmic Physics

Astronomy and Astrophysics

Work in the Astronomy and Astrophysics Section of the School concentrated on two main areas, non-thermal high-energy astrophysics and star formation, although there was also some work of a more general nature. In addition to the research work, significant contributions were also made to public outreach, to the development of the national infrastructure and to third-level teaching. Dunsink Observatory was renovated as a centre for scientific meetings, guest accommodation and public outreach and a Centre for Astroparticle Physics and Astrophysics established. The section also supported the proposal for an Irish node of the LOFAR radio telescope system.

As its name implies, non-thermal high-energy astrophysics deals with some of the most extreme systems in the universe including accreting black holes, pulsars, supernova remnants, gamma-ray burst sources and active galactic nuclei. A common feature observed in all these objects is emission of high-energy photons (X-rays and gamma-rays) with broad spectral energy distributions, often of power-law form. This electromagnetic radiation cannot be produced by thermal processes and points to the existence of populations of accelerated particles extending to very high energies. The processes by which these particles are accelerated, and the methods by which they then interact with their environment to produce the radiation that we detect, is what we are interested in. The field is currently going through a golden

age, with many exciting results coming from ground-based Imaging Atmospheric Cherenkov telescopes, in particular the pioneering HESS experiment in which DIAS is a partner. These results are complemented at lower energies by data from the Fermi satellite observatory and from X-ray missions. An exciting prospect is the imminent launch of the Japanese Astro-H satellite, in which DIAS is a partner, which will deliver unprecedented spectroscopic resolution in the hard X-ray region and will be a valuable resource in studying these systems.

One exciting sample of the work being done in this area concerns the two enormous so-called bubbles of gamma-ray emission located symmetrically above and below the Galactic plane which have recently been detected by the Fermi satellite. Felix Aharonian and his co-workers have proposed a plausible explanation for this totally unexpected phenomenon as being due to the accumulation of relic cosmic ray protons and heavier ions injected over the lifetime of the Galaxy by strong star formation and supernova activity in the central regions of the Galaxy.

In addition to the high-energy photons, in the case of accelerated protons and heavy ions hadronic interactions will also produce high-energy neutrinos which are in principle detectable. DIAS is a partner in the major European project in this area KM3NeT providing specialist advice on astrophysical source models. In view of the topical nature of this work, the unique position occupied by the Institute in so many key experiments, and the potential for linkages with theoretical physics and other centres, the Governing Board of the School approved the establishment of a Centre for Astroparticle Physics and Astronomy under the leadership of Felix Aharonian to provide a focus for these activities. The centre will be launched with a major summer school in 2011.

In the star formation group, under the leadership of Tom Ray, work is focused on understanding the process of star and planet formation together with its associated phenomena. While much progress has been made in the last few decades, this still remains a key and not fully understood area of modern astrophysics. The field has been driven both by advances in observing technology, which are now allowing us to probe processes very close to the forming stars, and by computational simulations which allow us to model using supercomputers the complicated physics involved.



Prof. Ronald Buta, The University of Alabama, 17th April 2010 Grubb Telescope, South Dome, Dunsink Observatory.

An tOll. Ronald Buta, Ollscoil Alabama, 17ú Aibreán 2010 Teileascóp Grubb, Cruinneachán Theas, Réadlann Dhún Sinche.

Scoil na Fisice Cosmaí

Réalteolaíocht agus Réaltfhisic

Sa Rannóg Réalteolaíochta agus Réaltfhisice dhírigh an obair ar dhá phríomhréimse, réaltfhisic ardfhuinnimh neamhtheirmeach agus réaltfhoirmíocht, cé go ndearnadh roinnt oibre de chineál níos ginearálta freisin. Chomh maith leis an obair thaighde, rinneadh rudaí suntasacha freisin i bhfor-rochtain phoiblí, i bhforbairt an r-infreastruchtúir náisiúnta agus i dteagasc tríú léibhéal. Athchóiríodh Réadlann Dhún Sinche mar ionad do chruinnithe eolaíoch, mar lóistín d'aoionna agus mar fhor-rochtain phoiblí, agus bunaíodh Lárionad don Fhisic Réaltcháithníní agus don Réaltfhisic. Thacaigh an rannóg freisin leis an moladh le haghaidh nóid Éireannach den chóras radaiteileascóp LOFAR.

Mar a thugann an t-ainm le fios, déileálann an réaltfhisic ardfhuinnimh neamhtheirmeach le cuid de na córais is foirní sa chruinne, ina measc tá: dúphoill ag fuilleamh, pulsáir, iarsmaí ollnóva, foinsí roiseanna gháma-ghathanna agus núicléis réaltra gníomhacha. Gné a bhreathnaítear go coitianta sna rudaí seo uile ná astúcháin fótón ardfhuinnimh (X-ghathanna agus gáma-ghathanna) le dáilt leathana speictreacha fuinnimh, go minic i bhfoirm dhlí na cumhachta. Ní féidir le próisis theirmeacha an radaíocht leictreamaighnéadach seo a dhéanamh, rud a léiríonn go bhfuil cineálacha cáithníní luathaithe ann a théann suas go fuinnimh fíor-arda. Tá suim againn sna próisis trína luathaítear na cáithníní seo agus sna modhanna lena n-idirghníomhaíonn siad ansin lena dtimpeallacht chun an radaíocht, a bhraithimid, a tháirgeadh. Táimid i ré órga sa ghort faoi láthair, lena lán torthaí spreagúla ag teacht ó theileascóipeanna atmaisféaracha iomháite Cherenko ar an talamh, go háirithe ó thurgnamh ceannródaíoch HESS ina bhfuil DIAS comhpháirteach. Tá na torthaí seo á gcomhlánú ag fuinnimh níos ísle ag sonraí ó réadlann satailíte Fermi agus ó mhísin X-ghathacha. Cúis mhór corraithe ná lánseáil satailíte Astro-H na Seapáine, atá ar tí tarlú agus ina bhfuil DIAS comhpháirteach. Soláthróidh sé gléineacht speictreascóipeach nach bhfacthas go dtí seo sa réimse cruá-X-ghathach agus beidh sé ina achmhainn luachmhar i staidéar na gcóras seo.

Baineann sampla spreagúil amháin den obair atá ar siúil sa réimse seo leis an dá bhoilgeog ollmhóra astúchán gáma-ghathach, mar a thugtar orthu, atá lonnaithe go siméadrach os cionn phlána an Réaltra agus faoina bhun atá breathnaithe ag satailít Fermi le déanaí. Mhol Felix Aharonian agus a chomhghleacaithe miníú sochreidte ar an bhfeiniméan seo a bhí go hiomlán gan choinne, is é sin gur cnuasach d'iarsmaí gathanna cosmacha prótón agus d'ian is troime insteallaithe thar shaolré an réaltra ag gníomhaíocht láidir réaltfhoirmíochta ollnóva i réimsí lárnaigh an Réaltra is cúis leis an bhfeiniméan.

Le taobh na bhfótón ardfhuinnimh, i gcás na bprótón luathaithe agus na n-ian trom, táirgfidh idirghníomhaíochtaí hadróin neoidríónna ardfhuinnimh atá inbhraite go teoiriciúil. Tá DIAS comhpháirteach sa phríomhthionscadal Eorpach sa réimse seo, KM3NeT, agus tá sí ag soláthar comhairle speisialta ar shamhaltáin na foinse réaltfhisice. De bharr go bhfuil an chineál oibre seo chun tosaigh faoi láthair, go bhfuil áit uathúil ag an Institiúid in iliomad eocharthurgnamh, agus go bhfuil féidearthachtaí ann chun naisc a dhéanamh leis an bhfisic teoiriciúil agus le hionaid eile, d'fhaomhaigh Bord Bainistíochta na Scoile Ionad Fisice Réaltcháithníní agus Réalteolaíochta a bhunú faoi cheannasaíocht Felix Aharonian chun fócas a thabhairt do na gníomhaíochtaí seo. Seolfar an t-ionad le mórscóil samhraidh i 2011.

Sa ghrúpa réaltfhoirmíochta, faoi cheannasaíocht Tom Ray, tá an obair ag díriú ar thuiscint a fháil ar phróiseas réaltfhoirmíochta agus plainéadfhoirmíochta mar aon lena bhfeiniméin ghaolmhara. Cé go bhfuil a lán dul chun cinn déanta le fiche nó tríocha bliain anuas, is réimse tábhachtach den réaltfhisic nua-aimseartha í seo nach bhfuil tuiscint iomlán uirthi fós. Tá an réimse á thiomáint le dul chun cinn i dteicneolaíocht bhreathnóireachta atá ag ligean dúinn anois próisis a scrúdú an-ghar do na réalta agus iad ag foirmiú, agus le hinsamhlaithe ríomhaireachtúla atá ag ligean dúinn, le sár-ríomhairí, an fhisic chasta atá i gceist a shamhailt. De réir a chéile, tá an réimse ag brath freisin ar thacair ollmhóra sonraí, agus arís, is gá bheith ábalta teacht ar r-infreastruchtúir ard-thaighde chuige seo (is féidir na rudaí céanna a rá faoi réaltfhisic ardfhuinnimh). Tá an tOllamh Tom Ray ina chomhphríomhthaighdeoir ar an ionstraim MIRI a lánseálfar ar Spásteileascóp James Webb (a rachaidh ina áit Spásteileascóp Hubble) agus tá sé páirteach i roinnt tionscadal breathnóireachta eile freisin. Bhí dhá bhuaic ó obair na rannóige i rith na bliana: an fhionnachtain iontach go bhfuil dhá chineál réalta lag maise maighnéadaithe ann; agus an léiriú nach bhfuil ach modh amháin réaltfhoirmíochta ann de réir dealramh.

I gcontrárthacht le teoiric chaighdeánach an dineamó, aimsíodh le déanaí go bhfuil réimsí maighnéadacha ag réaltaí lán-dronnacha lag-mhaise (.i. cineál speictreach is déanaí ná M4). Ag úsáid íomháú tomagrafaíochta, tá sé aimsithe ag Julien Morin et al. go bhfuil dhá ghrúpa faoi leith de na réaltaí seo ann: iad siúd le réimsí dépholacha aicsisiméadracha láidre, agus iad siúd le toipeolaíochtaí réimse aicsisiméadrach lag.

Increasingly the field is also becoming dependent on the analysis of extremely large data-sets, again requiring access to an advanced research e-infrastructure (the same comments apply to high-energy astrophysics). Tom Ray is a Co-PI of the MIRI instrument to be launched on the James Webb Space Telescope (the successor to the Hubble telescope) and is also involved in a number of other major observational projects. Two highlights from the work of the section during the year were the surprising discovery that there are two types of magnetised low mass stars, and the demonstration that there appears to be only one mode of star formation.

Contrary to standard dynamo theory, fully convective low mass stars (i.e. spectral type later than M4) have recently been discovered to possess magnetic fields. Julien Morin et al., using tomographic imaging, have discovered that these stars come in two distinct groups: those with strong axisymmetric dipolar fields and those with weak, non-axisymmetric field topologies.

Surprisingly, these stars do not show any obvious differences as regards basic physical properties and occupy the same region in the mass rotation plane.

It has been suggested in the past that stars form either in cluster mode or in a distributed (effectively isolated) mode. The Spitzer Gould Belt Survey Team, with DIAS participation, have completed a global study of low mass star formation in the solar neighbourhood ($< 500\text{pc}$) and shown that the surface density of young stars is a smooth log-normal distribution from a few to several thousand stars per square pc. There is thus no evidence for multiple modes of star formation. These results also show that the fraction of stars that form in a cluster is a function of what we call a cluster. Using definitions in the literature, the fraction can vary from 40% to as much as 90%.

As indicated above, advanced research nowadays increasingly relies on access, not just to advanced observing facilities, but also to an advanced computational e-infrastructure. This was the main motivation for Luke Drury to propose the PRTL-4 funded project e-INIS which aims to establish on a pilot basis an integrated national e-infrastructure bringing together advanced networking, high-performance computing, and high-capacity data services. During the year the first user-controlled light path connections were lit on the Irish Research Optical Network

and demonstrated to sustain 10Gb/s throughput. In addition to providing research infrastructure, the e-INIS project has delivered improved levels of expert user-support and facilitated access to shared ICT resources. A key challenge with such shared services is that of user authentication, which the e-INIS Edugate activity has sought to address. Edugate provides a federated identity management system for all national researchers and has this year successfully transitioned from pilot to full production status. The main national computational resource, Stokes, which was the first significant capital investment under the project in 2008, was this year upgraded and extended with direct contributions from five national universities further strengthening the provision of shared services in Ireland. With ever increasing volumes of data, both as the raw material and by-product of research, a capacity for its storage, management and sharing has become an integral component of modern e-Infrastructures. The first phase of the federated national data-store was further advanced this year with a capacity approaching one Petabyte. Researchers from a broad spectrum of disciplines have become early adopters of the data management services and have already begun to fully exploit the available storage and network bandwidth capacity. The BlueGene computer systems Schroedinger and Lanczos, operated on behalf of the National Capability Computing Consortium by the Institute, reached their planned three-year life at the end of the year.

An evaluation of the impact of the systems concluded that they had exceeded expectations and been a major factor in propelling Ireland and Irish researchers into the field of true capability computing. An impressive demonstration of this was the success of Turlough Downes, working in the Section on secondment from DCU, in obtaining proto-type testing access on two of the largest supercomputers in Europe for his Hydra code.

Public Outreach in Dunsink Observatory has a long history, with a tradition of open nights for the public going back even prior to its transfer to the Institute in 1947. This was continued and expanded with a broader range of activities, and the main observatory building renovated to provide an enhanced and improved visitor experience. It is planned to use the historic building for small meetings, workshops and as guest accommodation in addition to its use for public outreach.

Scoil na Fisice Cosmaí (ar leanúint)

Is cúis iontais é nach bhfuil na réaltaí seo ag léiriú aon difríochtaí follasacha maidir le bunairíonna fisiciúla agus go bhfuil siad sa réigiún céanna sa phlána rothlaithe maise.

Cuireadh moladh chun cinn roimhe seo gur i gceann amháin de dhá mhodh a fhoirmítear réaltaí: i modh braisle nó i modh dáilithe (scoite leo féin i ndáiríre). I staidéar ina raibh DIAS páirteach, tá Foireann Suirbhéireachta Chrios Spitzer Gould tar éis staidéar iomlán a chríochnú ar réaltfhoirmíocht lagmaise sa chomharsanacht ghrianda (< 500pc) agus léirigh an staidéar go bhfuil dlús dromchla réaltaí óga ina dháileachán lognormalach mín ó dhornán réalta go dtí na mílte an pc cearnógach. Níl aon fhianaise ann mar sin le haghaidh iolmhodhanna réaltfhoirmíochta. Léiríonn na torthaí seo freisin gur feidhm de rud ar a dtugaimid braisle é líon na réaltaí a fhoirmíonn i mbraisle. Ag baint úsáide as sainmhínte sa litríocht, is féidir go mbeidh athruithe ó 40% go chomh hard le 90% i líon na réaltaí.

Mar a luadh thuas, is mó a bhraitheann ardaighde inniu, ní hamháin ar theacht ar ardsaoaráidí breathnóireachta, ach ar r-infreastruchtúr ardriomhaireachta freisin. Ba é seo ba mhó a spreag Luke Drury chun an tionscadal e-INIS, atá cistithe ag PRTL-4, a mholadh: is é an chuspóir atá aige r-infreastruchtúr comhtháite náisiúnta a bhunú ar bhonn píolótach, ag tabhairt le chéile ardíonú, ríomhaireacht ardfheidhmeach agus seirbhísí sonraí a bhfuil ardoilleadh acu. I rith na bliana, ar Líonra Optúil Taighde na hÉireann lasadh na chéad naisc conaire solais atá faoi smacht úsáideoirí agus léiríodh go raibh na naisc ag coinneáil tréchur 10Gb/s. Le taobh infreastruchtúr taighde a sholáthar, tá tionscadal e-INIS ag cur feabhais ar leibhéal na saintacaíochta atá ar fáil d'úsáideoirí agus tá sé ag éascú teacht ar chomhachmhainní ICT. Lena leithéid de chomhsheirbhísí, is príomhdhúshlán é úsáideoirí a aithint, rud ar a bhfuil gníomhaíocht e-INIS Edugate ag iarraidh díriú. Tá Edugate ag soláthar córas bainistíochta cónasctha céannachta le haghaidh na dtaighdeoirí náisiúnta go léir agus d'éirigh leis bogadh i mbliana ó stádas táirgthe phiolótaigh go stádas táirgthe láin. Is é Stokes an phríomhachmhainn náisiúnta ríomhaireachta agus ba é an chéad infheistíocht shuntasach chaipitil é sa tionscadal in 2008, uasghrádaíodh agus leathnaíodh é i mbliana, le hionchuir díreach ó chúig ollscoil náisiúnta, rud atá ag láidriú soláthar comhsheirbhísí in Éirinn. Tá toirt na sonraí ag síorméadú, mar bhunsonraí agus mar thoradh ar thaighde, agus dá bharr sin, is gné riachtanach de r-infreastruchtúir nua-aimseartha é anois gur féidir iad a stóráil, a bhainistiú



Astronomers attending the Solarfest June 2010

Réalteolaithe ag freastal ar an Solarfest Meitheamh 2010

agus a chomhroinnt. Cuireadh chun cinn an chéad chéim den stór cónasctha náisiúnta sonraí i mbliana le toilleadh a bhí gar do pheitibheart amháin. Is luath a bhí taighdeoirí ó réimse leathan disciplíní ag baint úsáide as na seirbhísí bainistíochta sonraí agus tá siad ag tosú ar lánfheidhm a bhaint as an toilleadh stórála agus as bandaleithead an líonra atá ar fáil cheanna féin. Ag deireadh na bliana, ba é deireadh thréimhse beatha pleanáilte trí bliana Schroedinger agus Lanczos, na córais ríomhaireachta BlueGene a bhí an Institiúid ag oibriú thar ceann an Chuibhreannais Ríomhaireachta Inniúlachta Náisiúnta.

Nuair a rinneadh measúnú ar thionchar na gcóras baineadh an tatal as gur éirigh thar barr leo ar shlí nach raibh aon duine ag súil leo agus gur gné mhór iad i gcur chun cinn na hÉireann agus taighdeoirí Éireannacha sa réimse ríomhaireachta fíorinniúlach. Léiríú suntasach air seo ba ea rath Turlough Downes, a bhí ag obair sa Rannóg agus é ar iasacht ó DCU, ar éirigh leis teacht ar dhá cheann de na sár-ríomhairí is mó san Eoraip chun a chóid Hydra a phrótathástáil.

Tá stair fhada ag For-rochtain Phoiblí i Réadlann Dhún Sinche, agus tá traidisiún oícheanta oscailte ag dul siar fiú roimh a haistriú chuig an Institiúid i 1947. Leanadh leis seo agus leathnaíodh é le réimse gníomhaíochtaí a bhí níos leithne, agus athchóiríodh príomhfhoirgneamh na réadlainne chun feabhas a chur ar eispéreas cuairteoirí. Chomh maith lena húsáid don fhor-rochtain, tá sé beartaithe againn an foirgneamh stairiúil a úsáid le haghaidh mionchruinnithe, ceardlann agus mar lóistin d'áionna.

School of Cosmic Physics

Geophysics

1. Research highlights

1.1 INDEPTH

The Fourth Phase of magnetotelluric surveying of the Tibetan Plateau occurred in 2010 on the northern boundary across the Kunlun and Altyn Tagh Faults by Jones, Vozar and Le Pape. This completes a 15 year programme of effort by Irish, Canadian and Chinese scientists to map the conductivity structure of the Plateau and relate it to ongoing tectonic processes.

1.2 Ireland Array

Ireland Array will be a seismic antenna the size of Ireland, aimed deep down into the Earth. It will record vibrations of the Earth's surface caused by distant earthquakes, as well as by ocean waves near Ireland's shores. The new data will reveal the structure of Ireland's crust and deeper lithosphere in unprecedented detail. The 20 state-of-the-art portable seismic systems purchased by the school in 2009 form the backbone of the array. 2010 saw the initiation of the project and deployment of its first 7 seismic stations.

1.3 Continental Deformation

New pattern of lithospheric deformation discovered. Lebedev, Tirel and their co-workers in Germany have identified a previously unknown pattern of deformation of continental lithosphere. They measured slight directional variations of seismic wave speeds in the Aegean region and determined directions of flow of the rock at depth. They found that the extension in the region is accompanied by viscous-fluid-like flow in the deep lithosphere, parallel to the extension direction but at an angle to the major faults observed at the surface. The article on the research was accepted for publication in *Nature Geoscience*.

1.4 Irish Margins

A project involving plate tectonic reconstructions of the Irish and Newfoundland region and the opening of the North Atlantic region was begun in late 2010. This is funded by the Irish Government and the Irish Petroleum Infrastructure Programme and involves industry and academic partners from Ireland and Canada. The final report on the Porcupine Irish Margins (PIMS) project was submitted to PIPCo as part of this integrated work programme. Two papers on the deep structure of Ireland's onshore/offshore lithosphere were published during the year and another submitted for publication. The new project on slope failure and sediment transport processes in the Rockall Trough using the Irish

National Seabed Survey data, gathered by the geological survey of Ireland, was begun.

2. New research activities

2.1 IREATHERM

A proposal led by Jones to Science Foundation Ireland's Principle Investigator programme for a geothermal energy assessment of the island of Ireland, named IREATHERM, was successful and funded at a level of €865K plus Overhead. Ireland's geothermal energy potential is inadequately known. IREATHERM will identify locations that offer the greatest opportunity for regional-scale space-heating and electricity generation from geothermal energy. Existing measurements indicate temperatures at depths to 5000m that are hot enough (100–150°C) to generate electricity using current technology and that could do so commercially in the future with ongoing technological advances. We will expand the available temperature database, establish a new database of necessary rock physical-properties and model the factors contributing to the observed temperature variations across Ireland, to allow more reliable targeting of prospective areas. Using electromagnetic imaging methods and by developing innovative software tools for jointly modelling electromagnetic and other existing geophysical data, we will study eight different "types" of geological environments to identify those that may host geothermal resources: deep aquifers or hot, dry rock. IREATHERM will significantly enhance the capacity to accurately characterise subsurface geology and potential geothermal resources.

2.2 Irish/Canadian Conjugate Margins

O'Reilly, in collaboration with Canadian and Irish colleagues, was invited to submit a full proposal to the Irish Petroleum Infrastructure Programme (PIPCo) for a new series of novel seismic experiments to probe the deep structure of the offshore Irish and Newfoundland sedimentary basins. These basins once formed a single structurally interlinked system in the late Cretaceous geological period, when Ireland and Newfoundland were joined together into a single landmass, prior to the opening of the present day North Atlantic Ocean. The proposed work programme is stimulated by fundamental scientific questions, but it has immediate economic implications for the hydrocarbon prospectivity of Ireland's vast under-explored offshore region. Phase 1 of the programme has been designed in detail, and this was presented at various workshops and conferences to academic, government and industry people.

Scoil na Fisice Cosmaí

An Rannóg Geoifisice

1. Buaiceanna Thaighde

1.1 INDEPTH

Rinne Jones, Vozar agus Le Pape Céim a Ceathair de shuirbhéireacht mhaighnéadaiteallúireach ardchláir na Tibéide 2010 ar an teorainn thuaidh thar Éascanna Kunlun agus Altyn Tagh. Tá deireadh ann anois le clár 15 bliana ina ndearna eolaithe — Éireannaigh, Ceanadaigh agus Síniigh — iarracht struchtúr seoltachta an ardchláir a mhapáil agus é a ghaolú le próisis leanúnacha theicteonacha.

1.2 Ireland Array

Is é a bheidh in Ireland Array ná aeróg sheismeach ar cóimhéid le hÉirinn agus beidh sí dírithe síos go domhain isteach sa Domhan. Déanfaidh sé taifeadadh ar chreathanna i ndromchla an Domhain de bharr creathanna talún i bhfad i gcéin agus de bharr tonnta aigéanacha gar do chladaí na hÉireann. Is i slí chruinn shoiléir nach raibh feicthe roimhe seo a léireoidh na sonraí nua struchtúr screimhe agus litisféir níos doimhne na hÉireann. Cnámh droma an eagair ná an 20 córas seismeach iniompartha úrscothacha a cheannaigh an scoil i 2009. Cuireadh tús leis an tionscadal i 2010 agus lonnaíodh 7 stáisiún sheismeacha tosaigh.

1.3 Dífhoirmiú Ilchríoch

Fionnaíodh patrún nua dífhoirmithe litisféarach.

D'aithin Lebedev, Tírel agus a gcomhghleacaithe sa Ghearmáin patrún dífhoirmithe liteasféireach ilchríoch nár aithníodh roimhe seo. Thomhais siad comhathruithe lagthreocha i luasanna tonnta seismeacha sa réigiún Aeigéach agus tháinig siad ar threoanna shreabh na gcarraigeacha sna doimhneacht. Fuair siad go ngabhann síneadh sa réigiún le sreabhadh cosúil le sreabhán slaodach sa domhainliteasféar, comhthreomhar le treo an tsínte ach ar claonadh leis na príomhéascanna ag an dromchla. Glacadh leis an alt seo ar an taighde agus foilseofar é in Nature Geoscience.

1.4 Imill na hÉireann

Go déanach i 2010 cuireadh tús le tionscadal ar atógáil phlátaí teicteonacha réigiúin na hÉireann agus Thalamh an Éisc agus ar oscailt réigiúin an Atlantaigh Thuaidh. Tá sé seo cistithe ag Rialtas na hÉireann agus ag Clár Infreastruchtúir Peitri Liam na hÉireann agus is tionscal agus comhpháirtithe acadúla ó Éirinn agus ó Ceanada atá páirteach ann. Mar chuid den chlár oibre comhtháite seo, seoladh isteach an tuarascáil deiridh ar PIMS (Seismic Imill na hÉireann den Torcán Craobhach) chuig PiPCo. I rith na bliana foilsíodh dhá pháipéar ar struchtúr domhain litisféir na hÉireann ar tír/amach san fharrage agus cuireadh ceann eile faoi bhráid



DIAS Scholars at an event in celebration of 70th Anniversary of the foundation of DIAS.

Scoláirí DIAS ag ócáid i láthair ag féile chomórtha seachtó bliain na hInstitiúide.

foilsitheoirí. Cuireadh tús leis an tionscadal nua ar chliseadh fána agus ar phróisis iompraíochta dríodair in Umar Rocal, ag baint úsáide as sonraí Shuirbhéireachta Náisiúnta Ghrinneall na hÉireann, sonraí a bhailigh Suirbhéireacht Gheolaíochta na hÉireann.

2. Gníomhaíochtaí nua taighde

2.1 IRE THERM

D'éirigh le togra ar a dtugtar IRE THERM faoi cheannaireacht Jones chuig clár Príomhthaighdeora Fondúireachta Eolaíochta Éireann le haghaidh measúnú a dhéanamh ar fhuinneamh geoiteirmeach oileán na hÉireann, agus fuarthas cistiú ag leibhéal €865K móide costas riartha. Is gann ár n-eolas maidir le poitéinseal fhuinneamh geoiteirmeach na hÉireann. Aithneoidh IRE THERM na háiteanna ina bhfuil na deiseanna is fearr le haghaidh spás-téamh agus giniúint leictreach a dhéanamh as fuinneamh geoiteirmeach. Na tomhais atá ann faoi láthair léiríonn siad go bhfuil teochtaí ag doimhneachtaí 5000m atá te go leor (100–150°C) chun leictreachas a ghiniúint ag baint úsáide as teicneolaíocht reatha agus chun brabús a dhéanamh as san am atá le teacht agus dul chun cinn á dhéanamh sa teicneolaíocht. Leathnóimid an bunachar teochtaí atá ar fáil, bunóimid bunachar nua d'airíonna riachtanacha fisiciúla carraigeacha agus déanfaimid samhltú ar na toscaí a chuirfidh le comhathruithe teochta trasna na hÉireann, agus ligfidh seo dúinn díriú níos iontaoifa a dhéanamh ar réigiúin a d'fhéadfadh a bheith úsáideach.

2.3 SWARM

Zdenek is participating on the European Space Agency (ESA) project on the preparation of SWARM satellite mission that will map the magnetic field of the Earth with unprecedented resolution.

3. Other highlights

3.1 Irish Geoscience Graduate Programme

The Irish Geoscience Graduate Programme is an All-Ireland initiative from the heads of geoscience schools/departments at five universities and one research institute involved in the training of post-graduate students in the geosciences. It has a visionary and unique objective, which is to establish a robust, holistic, broad-based training programme for post-graduate students, wherever they are registered for their fourth level degree (primarily Ph.D.) on the island of Ireland.

The IGGP involves the Geophysics Section of DIAS, the Department of Earth and Ocean Sciences of the National University of Ireland Galway, the Department of Geology of Trinity College Dublin, the Department of Geology of University College Cork, the School of Geological Sciences of University College Dublin and the School of Environmental Sciences [Geophysics Group] of the University of Ulster Coleraine as partner institutions. There are linkages with the Geological Survey of Ireland and the Geological Survey of Northern Ireland as well as the School of Geography, Archaeology and Palaeoecology of Queen's University Belfast and the Department of Geography of the National University of Ireland Maynooth. All these institutions have agreed to offer modules [worth from 2.5 to 10 ECTS credits] under the programme.

IGGP was funded by a Griffith Award of the Department of Communications, Energy and Natural Resources to Jones of €416,000 for a period of seven years. These funds are being used for a two-year Co-ordinator, Professor Ben Kennedy, who is tasked with initiating the IGGP, and an Administrator for the remaining five years.

The IGGP Pilot Year was initiated in September, 2010, with some fifteen (15) Short Course modules being offered and taken up by over 50 students from across the whole of the Ireland.

3.2 Outreach – Statutory Public Lecture

The Geophysics Section provided the 2010 School of Cosmic Physics's Statutory Public Lecture. It took place on 24th November, 2010 in Trinity College Dublin, and was given by Dr. Walter Mooney of the United States Geological Survey. His enthralling lecture was entitled The Gathering Storm: Mitigating the effects of Earthquakes, Tsunamis and other Global Natural Hazards using Geoscience, and was very well attended.

3.3 Seismology in Schools

The SIS project continued in 2010 in the 50 participating schools throughout Ireland. Teachers and students continued to monitor the seismometer activity in the classroom and to receive the earthquake alerts from DIAS each time a significant earthquake occurs. New members to the project included St Mary's Secondary School, Dundalk, Co Louth, Mayfield Comprehensive Secondary School, Cork City and the National Museum in Dublin. A workshop was held in DIAS for two teachers from Donegal and Cork to introduce them to the project. During the year, twenty seven schools registered with the IRIS (Incorporated Research Institutions for Seismology) International Seismographs in Schools website and have been sharing their data with other schools around the world.

A part-time assistant coordinator (Ms. Grace Campbell) was appointed in September 2010, to take over the operation of the Seismology in Schools (Seismeolaíocht sa Scoil) Project. She now liaises with all the schools and trouble-shoots any problems teachers may have with the project. Teachers and students continue to upload data from the earthquakes they have recorded with their seismometers to the IRIS web-site.

3.4 Outreach – Robert Mallet Exhibition

Robert Mallet, a graduate of Trinity College, is widely regarded as a true polymath and the 'Father of Controlled Source Seismology'. He was born in Ryder's Row near Capel Street, Dublin on June 3rd, 1810. In 2010 we celebrated the Bicentenary of his birth with an exhibition initially at the Royal Dublin Society and then in 5 Merrion Square. The Official opening, by Leo Enright, NASA Space Agency Correspondent, RTE, of the Mallet Exhibition in DIAS, Merrion Square, took place on October 4th, and the exhibition ran until November 1st, 2010. Grace Campbell was the curator of the Exhibition. This very successful exhibition in DIAS was open to the public and was the first of its kind to be held in 5, Merrion Square.

Scoil na Fisice Cosmaí (ar leanúint)

Ag baint úsáide as modhanna iomháite leictreamaighnéadacha agus trí úirlisí nuálacha bogearra a fhorbairt chun sonraí leictreamaighnéadacha agus sonraí geoifisice eile a chomhshamaltú, scrúdóimid ocht “gcineál” de thimpeallachtaí geolaíochta chun na cinn sin a d’fhéadfadh acmhainní gheoiteirmeacha a bheith iontu a aithint: uiscígh dhoimhne nó carraig the, thirim. Cuirfidh IRETherm go suntasach leis an gcumas chun cur síos a dhéanamh go cruinn ar gheolaíocht an fhodhromchla agus acmhainní geoiteirmeacha a d’fhéadfadh a bheith ann.

2.2 Imill na hÉireann

Le comhghleacaithe ó Éirinn agus ó Cheanada, fuair O’Reilly cuireadh togra iomlán a chur faoi bhráid Chlár Infreastruchtúir Peitri Liam na hÉireann (PIPCo) le haghaidh sraith nua turgnamh nuálach chun iniúchadh a dhéanamh ar struchtúr domhain na n-imchuacha dríodair amach san fharraige ó Éirinn agus Thalamh an Éisc. Go déanach i ré gheolaíoch Chailceach, nuair a bhí Éire agus Talamh an Éisc le chéile in aon mhórchríoch amháin, roimh oscailt Aigéan an Atlantaigh Thuaidh ár linne, bhí na himchuacha seo in aon chóras cónasctha struchtúrtha amháin. Spreagann an clár oibre molta buncheisteanna eolaíochta ach tá impleachtaí eacnamaíochta aige d’fhéidearthachtaí hidreacarbóin an réigiúin ollmhóir amach san fharraige ó Éirinn nach bhfuil iniúchta a dhóthain go fóill. Tá Céim 1 den chlár deartha go sonrach agus cuireadh i láthair é d’acadóirí agus do dhaoine bainteach le rialtas agus le tionscal ag ceardlanna agus ag comhdhálacha éagsúla.

2.3 SWARM

Tá Zdenek ag glacadh páirte sa tionscadal le Gníomhaireacht Spáis na hEorpa ar ullmhú mhisean satailíte SWARM chun réimse maighnéadach an Domhain a mhapáil le taifeach an-soiléir go deo.

3. Buiceanna eile

3.1 Clár Éireannach Geo-eolaíochta do Chéimithe

Tionscnamh uile-Éireannach is ea an Clár Éireannach Geo-eolaíochta do Chéimithe agus tháinig sé ó cheannairí scoileanna/rannóga geo-eolaíochta i gcúig ollscoil agus in institiúid taighde amháin a oileann mic léinn iarchéime sna geo-eolaíochtaí. Tá cuspóir físeach, uathúil aige, is é sin, clár oiliúna láidir, iomlánaíoch, leathan a bhunú do mhic léinn iarchéime, pé áit ar oileán na hÉireann ina bhfuil siad cláraithe dá gcéimeanna ceathrú leibhéal (Ph.D. go príomha).

Tá na Institiúidí seo comhpháirteach san IGGP le Rannóg Geoifisice DIAS: an Roinn Domhaneolaíochta agus Aigéaneolaíochta, Ollscoil na hÉireann, Gaillimh; Roinn

Gheolaíochta Choláiste na Tríonóide, Baile Átha Cliath; Roinn Gheolaíochta Choláiste na hOllscoile, Corcaigh; Scoil na nEolaíochtaí Geolaíochta, Coláiste na hOllscoile, Baile Átha Cliath; agus Scoil na nEolaíochtaí Comhshaoil [Grúpa Geolaíochta] Ollscoil Uladh, Cúil Raithin. Tá naisc ann le Suirbhéireacht Gheolaíochta na hÉireann agus le Suirbhéireacht Gheolaíochta Thuaisceart Éireann, chomh maith le Scoil na Tíreolaíochta, na Seandálaíochta agus na Pailé-éiceolaíochta, Coláiste na Banríona, Béal Feirste, agus le Roinn na Tíreolaíochta, Ollscoil na hÉireann, Maigh Nuad. Tá na hinstiúidí seo go léir toilteanach modúil [is fiú 2.5 go 10 gcreidmheas ECTS] a thairiscint faoin gclár.

Is ó ghradam Griffith na Roinne Cumarsáide, Fuinnimh agus Achmhainní Nádúrtha a cistíodh an IGGP. Tugadh cistiú €416,000 do Jones thar thréimhse seacht mbliana. Tá na cistí seo á n-úsáid: tá Comhordaitheoir dhá bhliana á fhostú, mar atá, an tOllamh Ben Kennedy, a mbeidh air tús a chur leis an IGGP taobh istigh den thréimhse sin; agus tá Riarthóir á fhostú do na cúig bliana eile.

Cuireadh tús le Bliain Phiólóta an IGGP i mí Mheán Fómhair 2010 agus táirgeadh cúig mhodúil Gearrchúrsa déag (15) agus ghlac os cionn 50 mac léinn leo ar fud na hÉireann.

3.2 For-rochtain – Léacht Phoiblí Reachtúil

Sholáthraigh An Rannóg Geoifisice léacht phoiblí reachtúil na Scoile Fisice Cosmaí in 2010. Tharla sí ar an 24ú Samhain 2010 i gColáiste na Tríonóide, Baile Átha Cliath agus thug an Dr. Walter Mooney ó Shuirbhéireacht Gheolaíochta na Stát Aontaithe í. Chuir a léacht: The Gathering Storm: Mitigating the effects of Earthquakes, Tsunamis and other Global Natural Hazards using Geoscience cluain ar an lucht éisteachta agus bhí freastail mhór ann.

3.3 Seismeaíocht sa Scoil

Sa 50 scoil ar fud na hÉireann atá ag glacadh páirte ann lean tionscadal SSS in 2010. Lean oidí agus mic léinn ag monatóireacht ghníomhaíocht na seismiméadar sna ranganna agus ag glacadh foláireamh creatha talún ón DIAS gach uair a tharla crith talún suntasach. I measc na mball nua bhí Meánscoil N. Mhuire, Dún Dealgan, Co. Lú, Meánscoil Chuimsitheach Mayfield, Cathair Chorcaí, agus Ard-Mhúsaem na hÉireann i mBaile Átha Cliath. Bhí ceardlann sa DIAS chun buneolas faoin tionscadal a thabhairt do bheirt mhúinteoirí ó Dhún na nGall agus ó Chorcaigh. I rith na bliana, chláraigh seacht scoil is fiche le suíomh Gréasáin IRIS (Institiúidí Corpraithe Taighde don tSeismeaíocht) International Seismographs in Schools agus tá siad ag roinnt a gcuid sonraí le scoileanna eile mórtimpeall an domhain.



Dunsink Observatory
Réadlann Dhún Sinche

3.5 The Irish National Seismic Network

Despite the economic climate, the Geophysics Section has continued to enhance its seismological observational facilities and launched the Irish National Seismic Network (INSN) in 2010. Prior to 2010 there were only two broadband seismic stations recording in Ireland, one in the Dublin mountains (DSB) and one in Valentia, Co. Kerry, with the data from DSB coming in delayed realtime and from Valentia some weeks late (disk recording, no realtime).

The development and expansion of the INSN continued throughout the year. Site tests were carried out in Donegal and Wexford and bunkers for the three new seismic stations in Wexford, Galway and Donegal were constructed. This now brings the INSN to a total of five real-time permanent seismic stations.

There are plans to expand the network by a further two stations in 2011 but site locations have not yet been determined.

Finally, Ireland has a modern seismic network that is beginning to be respectable compared to our peers. However, the continued funding of this national service must be assured if the INSN is going to provide the information that the State needs.

3.6 CTBTO - Comprehensive Nuclear Test Ban Treaty Organisation, National Data Centre (NDC)

The outfitting of the NDC in 5 Merrion Square, was carried out during the year. The computer hardware has been purchased and is on-site for development. Tom Blake attended the CTBTO Working Group B sessions and the meetings of the Waveform Expert Group in February and August. The surrogate Inspector training programme, of which T Blake is the Irish representative was held in Hungary in June-July. As part of the CTBTO SAMS (Seismic Aftershock Monitoring System) expert group, Tom Blake attended a meeting of the group in December in Baden, Austria.

4. Conferences/Workshops/Courses

4.1 Conference: ORFEUS

DIAS Geophysics hosted the group for Observatories and Research Facilities for European Seismology (ORFEUS) for its annual Seismological Observatory Coordination Meeting in Trinity College Dublin from 24-27 May, 2010. The conference was opened by the Minister for Science, TD Conor Lenihan, and was attended by over 80 observatory seismologists from across Europe.

4.2 Workshops

A 2-day Workshop on Stochastic Modelling and Joint Inversion was held in Merrion Square on 18-19 February. Some 20 people from Europe and North America attended.

A 2-day Workshop on Continental Anisotropy was held in Merrion Square on 8-9 October. Some 20 people from Europe and North America attended.

4.3 Short Courses

Jones presented a Short Course on Magnetotellurics at the offices of DIAS to some 30 people from across the globe on 1-5 March. He repeated the course in Beijing from 11-13 October to 50 Chinese students.

Dr. Walter Mooney, of the United States Geological Survey, presented a Short Course on Continental Anisotropy from 22-26 November.

Martinek presented a weekly seminar on the Gravity Field of the Earth in the Spring, then a second seminar on Boundary-value problems of Physical Geodesy in the Autumn, to DIAS and other students.

Ceapadh comhordaitheoir cúnta páirtaimseartha (Ms Grace Campbell) i mí Mheán Fómhair 2010 chun an tionscadal Seismolaíocht sa Scoil a rith. Teagmháionn sí anois leis na scoileanna go léir agus déanann sí fabhtcheartú ar aon fhadhb a bhíonn ag múinteoirí leis an tionscadal. Leanann múinteoirí agus mic léinn ag uaslódáil na sonraí go dtí suíomh Ghréasáin IRIS ó na creathanna talún atá taifeadta acu lena gcuid seismiméadar.

3.4 For-rochtain – Taispeántas Robert Mallet

Glactar leis go forleathan gurbh ileolaí ceart é Robert Mallet, céimí de chuid Choláiste na Tríonóide, agus 'Athair na Seismolaíochta Foinse Rialaithe'. Rugadh é i Rae Ryder, gar do Shráid Capel, Baile Átha Cliath, ar an 3 Meitheamh 1810. In 2010 cheiliúramar comóradh 200 bliain a bhreithe le taispeántas, i gCumann Ríoga Bhaile Átha Cliath ar dtús, agus ansin i 5 Cearnóg Mhuirfean. Rinne Leo Enright, Tuairisceoir Gníomhaireachta Spáis NASA, RTE, Taispeántas Mallet a oscailt go hoifigiúil i DIAS, Cearnóg Mhuirfean, ar an 4 Deireadh Fómhair agus lean an taispeántas go dtí 1 Samhain 2010. Ba í Grace Campbell coimeádaí an taispeántais. Bhí fáilte roimh an bpobal ag an taispeántas an-rathúil seo, an chéad taispeántas riamh dá leithéid a ritheadh i 5 Cearnóg Mhuirfean.

3.5 Líonra Náisiúnta Seismeach na hÉireann

Ainneoin na timpeallachta eacnamaíochta, leanann an Rannóg Geoifisice ag cur go suntasach lena n-áiseanna breathnaitheacha seismeacha agus seoladh Líonra Náisiúnta Seismeach na hÉireann (INSN) i 2010. Roimh 2010 ní raibh ach dhá stáisiún leathanbhandacha seismeacha ag taifeadadh in Éirinn, ceann amháin i Sléibhte Átha Cliath (DSB) agus ceann eile i nDairbhre, leis na sonraí ón DSB ag teacht i réad-am moillithe agus ó Dhairbhre roinnt seachtainí ina dhiaidh sin (taifeadadh díosca, ceal réad-ama).

Lean forbairt agus leathnú an INSN ar feadh na bliana. Rinneadh tástálacha suímh i nDún na nGall agus i Loch Garmain agus tógadh buncair do thrí stáisiún seismeacha nua i Loch Garmain, i nGaillimh agus i nDún na nGall. Tá cúig stáisiún seismeacha réad-ama bhuana ag INSN anois.

Tá pleananna ann an líonra a leathnú le dhá stáisiún eile i 2011 ach níl na suíomhanna ina lonnófar iad socraithe fós.

Mar fhocal scoir, tá líonra seismeach nua-aimseartha ag Éirinn anois agus a bhfuil meas ag teacht air i gcomparáid lenár bpiaraí. Ach caithfear cistiú leanúnach a chinntiú don INSN má tá sé chun an fhaisnéis atá riachtanach don Stáit a sholáthar.

3.6 ECCCTN–Eagraíocht an Chonartha um Chosc Cuimsitheach ar Thrialacha Núicléach, Ionad Náisiúnta Sonraí (INS)

Rinneadh soláthar trealaimh an INS i 5 Cearnóg Mhuirfean i rith na bliana. Tá na cruu-earraí ríomhaireachta ceannaithe agus in áit, réidh lena bhforbairt. D'fhreastail Tom Blake ar sheisiúin Ghrúpa Oibre B den ECCCTN agus ar na cruinnithe den Ghrúpa de Phríomhshaineolaithe Waveform i míonna Feabhra agus Lúnasa. Ritheadh an clár traenála d'ionadaithe Cigireachta, ar a bhfuil Tom Blake mar ionadaí na hÉireann, san Ungáir i míonna Meitheamh-Iúil. Mar chuid de shainghrúpa CMIS (Córas Monatóireachta ar larchreathanna Seismeacha) den ECCCTN, d'fhreastail Tom Blake ar chruinniú den ghrúpa i mí na Nollag i mBaden, an Ostair.

4. Comhdhála/Cearlanna/Cúrsaí

4.1 Comhdháil: ORFEUS

D'óstáil Rannóg Geoifisice DIAS an ghrúpa ORFEUS (Réadlanna agus áiseanna taighde do sheismolaíocht na hEorpa) cruinniú cinnbhliana le haghaidh Chomhordú Réadlann Seismeach i gColáiste na Tríonóide, Baile Átha Cliath, ón 24-27 Bealtaine 2010. D'oscail an tAire Eolaíochta Conor Lenihan TD an chomhdháil agus d'fhreastail os cionn 80 seismolaí réadlainne ar fud na hEorpa uirthi.

4.2 Cearlanna

Ritheadh Cearlann 2-lá ar Shamhaltú Stocastach agus ar Chomhinbhéartú i gCearnóg Mhuirfean ar an 18-19 Feabhra. D'fhreastail thart ar 20 duine ón Eoraip agus ó Mheiriceá Thuaidh uirthi.

Ritheadh Cearlann 2-lá ar Aniseatrópacht Ilchríoch i gCearnóg Mhuirfean ar an 8-9 Deireadh Fómhair. D'fhreastail thart ar 20 duine ón Eoraip agus ó Mheiriceá Thuaidh uirthi.

4.3. Gearrchúrsaí

Tháinig thart ar 30 duine ó gach cearn den domhan agus d'fhreastail siad ar Ghearrchúrsa a thug Jones ar Mhaighnéadaiteallúireacht in oifigí DIAS ar an 1-5 Márta. Thug sé an cúrsa arís do mhic léinn Shíneacha i mBeijing ón 11-13 Deireadh Fómhair.

Thug an Dr Walter Mooney ó Shuirbhéireacht Gheolaíochta na Stát Aontaithe Gearrchúrsa ar Aniseatrópacht Ilchríoch ón 22-26 Samhain.

Thug Martinek seimineáir do mhic léinn DIAS agus do mhic léinn eile. San Earrach thug sé seimineáir seachtainiúil ar Réimse Imtharraingthe an Domhain, agus ansin san Fhómhar thug sé seimineáir ar "Boundary-value problems of Physical Geodesy".

School of Theoretical Physics in 2010

Directors Summary Report

Last year we had to cut back on the invitation of visitors, but on the whole we could maintain the high level of our research.

We still have three senior professors and three Schrödinger fellows (V. Braun, S. Kovacs and I. Lyberg). Concerning the IRCSET fellows, Dr. V. Dotsenko stayed with us until October and is now a fixed-term lecturer at TCD. V. Filev's fellowship covers both time with us and in Munich, where he started in Autumn. C. Morgan and A. Ghesquiere obtained their PhD and obtained postdoc positions, so we now have four pre-doctoral students. Among them, P. Abramski works with T. Dorlas and will finish soon. T. Kaltenbrunner and M. Vachovski are jointly supervised by D. O'Connor and our associate B. Dolan (Maynooth). O. Smits works in an arrangement involving J. Slingerland (Maynooth, associate and former fellow of DIAS), W. Nahm and S. Sint (TCD).

Anne Goldsmith retired as librarian. Her successor is Michelle Williams, who took up her position in October.

As usual, part of our research aims at an understanding of fundamental laws of nature and part at the prediction and understanding of new properties of ordinary matter, which might lead to new technologies. In the following highlights from both areas will be presented. There are of course strong links between them, in particular many common mathematical structures.

Quantum Information and Quantum Computing

In previous years we hoped that Ireland could play a leading role in quantum information and quantum computing, but substantial initial funding would be necessary before practical benefits can be reaped. At present we must be content to preserve our competence in order to be ready for a new initiative when this will be possible again.

Anne Ghesquiere and Tony Dorlas computed the behaviour of quantum entanglement of two particles interacting in a heat bath. If the influence of the heat bath is strong, they found that the interaction kills the entanglement very rapidly (sudden death). If it is weak, they found the surprising result that the interaction causes part of the entanglement to persist forever.



Chairman of School of Cosmic Physics Governing Board, Prof. Gerry Wrixon, Chairman of Council, Dr. Vincent Cunnane, Prof. Dervilla Donnelly, Prof. Robbert Dijkgraaf, Chairman of School of Theoretical Physics Governing Board, Prof. Arthur Jaffe, Chairman of School of Celtic Studies Board, Prof. Anders Ahlqvist.

Cathaoirleach an Bhord Scoil na Fisice Cosmaí, An tOllamh Gerry Wrixon, Cathaoirleach na Comhairle, An Dr. Vincent Cunnane, An tOllamh Dervilla Donnelly, An tOllamh Robbert Dijkgraaf, Cathaoirleach an Bhord Scoil na Fisice Teoiriciúla, An tOllamh Arthur Jaffe, Cathaoirleach an Bhord Scoil an Léinn Cheiltigh, An tOllamh Anders Ahlqvist.

Ciara Morgan and Tony Dorlas also looked at quantum information, namely at the amount of information which can be transmitted reliably per use of a quantum channel. They showed that in some circumstances transmitted quantum information can be reliably decoded even if the rate at which classical information is transmitted over a quantum channel exceeds the nominal capacity of the channel.

Olaf Smits studied tunneling behaviour at the edges of fractional quantum Hall states, the system which in our opinion is the best candidate for the construction of a quantum computer in a manageable time frame. With J. Slingerland and S. Simon (Oxford and NUI Maynooth) he found an exact and very general solution for tunneling involving several junctions.

Quantum Field Theory and String Theory

Apart from gravity, quantum field theory explains all everyday phenomena from chemistry to lasers and nuclear power, but its mathematical structure is still very obscure.

Scoil na Fisice Teoiriciúla i 2010

Cuntas achomhair an Stiúrthóra

Cé go raibh orainn gearradh siar ar líon ár gcuirí do chuairteoirí anuraidh, d'éirigh linn tríd is tríd cloí le hardchaighdeán ár gcuid taighde.

Tá triúr ollúna shinsearacha fós againn agus triúr ánraí Schroedinger (V. Braun, S. Kovacs agus I. Lyberg). Maidir leis na hánraí IRCSET, d'fhan an Dr. V. Dotsenko linn go dtí mí Dheireadh Fómhair agus is léachtóir d'achar seasta anois é i gColáiste na Tríonóide. Clúdaíonn ánráocht V. Filev a thréimhsí linne agus i Munich, áit ar thosaigh sé san fhómhar. Ghnóthaigh C. Morgan agus A. Ghesquiere na PhD acu agus fuair siad poist iardhochtúireachta, mar sin de tá ceathrar mac léinn iardhochtúireachta againn anois. Ina measc, críochnóidh P. Abramski, a oibríonn le T. Dorlas, go luath. Tá T. Kaltenbrunner agus M. Vachovski faoi stiúir D. O'Connor agus ár gcomhpháirtí B. Dolan (Maigh Nuad). Tá socrú ann go bhfuil O. Smits ag oibriú le J. Slingerland (Maigh Nuad, comhpháirtí agus iaránra DIAS), W. Nahm agus S. Sint (Coláiste na Tríonóide).

D'éirigh Anne Goldsmith as a post mar leabharlanná. Thosaigh a comharba Michelle Williams sa phost i mí Dheireadh Fómhair.

Mar is gnáth, díróinn cuid dár dtaighde ar bhundhlithe an nádúir a thuiscint agus díróinn cuid eile ar thuar a dhéanamh ar airíonna nua gnáthdhamhna agus ar a dtuiscint, rud a d'fheadfadh tús a chur le nuatheicneolaíochtaí. Léirítear an dá réimse sin sna buaiceanna seo a leanas. Tá naisc láidre eatarthu ar ndóigh, tá a lán struchtúr coitianta matamaitice eatharthu go háirithe.

Faisnéis Chandamach agus Ríomhaireacht Chandamach

Le blianta anuas, bhíomar dóchasach go bhféadfadh príomhról a bheith ag Éirinn san fhaisnéis chandamach agus sa ríomhaireacht chandamach, ach ba ghá cistiú suntasach a bheith ann sula bhféadfaí sochair phraiticiúla a bhaint. Faoi láthair, caithfidh bheith sásta ár gcumas a choinneáil réidh le haghaidh tionscnaimh nua nuair a bheidh deis dá leithéid arís ann.

Ríomhadh Anne Ghesquiere agus Tony Dorlas iompraíocht achrainn chandamach dhá cháithníní a bhí ag idirghníomhú i bhfolcadh teasa. Más láidir é tionchar an fholctha teasa, fuarthas gur mharraigh an t-idirghníomhaíocht an t-achrann go han-tapa (bás tobann). Más lag é, fuair siad an toradh

iontach go leanann cuid den achrainn go deo de bharr na hidirghníomhaíochta.

Scrúdaigh Ciara Morgan agus Tony Dorlas faisnéis chandamach freisin, is é sin, an méid faisnéise is féidir a tharchur go hiontaofa in aghaidh úsáid cainéil chandamaigh. Léirigh siad gur féidir, i gcásanna áirithe, faisnéis chandamach tarchurtha a dhíchódáil go hiontaofa fiú má théann an ráta, ag a dtarchuirtear an fhaisnéis chlaisiceach thar chainéal candamach, toilleadh ainmniúil an chainéil.

Scrúdaigh Olaf Smits iompraíocht tollánaithe ag imill staideanna candamacha codánacha Hall, an córas is fearr, dar linne, chun ríomhaire chandamach a thógáil i dtréimhse sholáimhsithe. Le J. Slingerland agus S. Simon (Oxford agus Ollscoil na hÉireann, Maigh Nuad) tháinig sé ar réiteach beacht agus an-ghinearálta le haghaidh tollánaithe le roinnt cumar.

Réimsetheoiric chandamach agus an tSreangtheoiric

Seachas imtharraingt, is í an réimsetheoiric chandamach an minió ar gach feiniméan laethúil ón gceimic go léasair agus cumhacht núicléach, ach tá a struchtúr matamaitice an-doiléir fós. Le himtharraingt san áireamh is í an tsreangtheoiric an chéad chéim eile, rud a chuireann le deacracht na matamaitice go pointe áirithe ach a osclaíonn peirspectíochtaí nua a éascaíonn go mór cuid de na háirimh.

Tá Stefano Kovacz ag oibriú ar dhá cheann de na peirspectíochtaí seo. Is féidir úsáid a bhaint as teoiric áirithe tomhsairí chun cur síos ar fhórsaí núicléach. Nuair a mhéadaítear an teoiric le huas-sársiméadracht, dealraíonn sé go n-éiríonn sé níos so-ionramhála ó thaobh na matamaitice de, agus b'fhéidir, fiú, gur féidir í a réiteach go hiomlán. D'aimsigh Stefano gléas áirimh nua a thug céim mhór ar aghaidh i dtreo a leithéid de réiteach iomlán. Braitheann an gléas ar an bhfoirmiúlachas 'twistor' a chum Roger Penrose ag tarraingt ar obair John Leighton Synge ónár institiúid. Is í an holografaíocht an dara peirspectíocht, rud a ghaolaíonn teoiric tomhsairí i spás-am i gceithre thoise le sreangtheoiric i gcúig thoise. Ait go leor, cabhraíonn sé seo le háirimh i dteoiric tomhsairí. Chuir Stefano le torthaí sa treo seo, a bhí teoranta d'éifeachtaí a bhfuil cuntas orthu i ndiagram Feynman, go leibhéal níos doimhne a bhfuil baint acu le struchtúr iomlán matamaitice an dá theoiric (ar a dtugtar go minic M-theoric ar thaobh na sreangtheoirice).

Including gravity leads to string theory, which to some extent makes the mathematics even more difficult, but also opens new perspectives which make some calculations much easier.

Stefano Kovacz works on two of these perspectives. Nuclear forces are described by a certain gauge theory. When the theory is enlarged by maximal supersymmetry, it seems to become much more tractable mathematically, maybe completely solvable. Stefano found a new calculational tool which allowed a big step forward towards such a complete solution. The tool depends on the twistor formalism invented by Roger Penrose, which in turn was inspired by the work of John Leighton Synge at our institute. The second perspective is holography, which relates gauge theory in four-dimensional spacetime to string theory in five dimensions. Surprisingly, this helps with gauge theory calculations. Stefano extended previous results in this direction, which were restricted to effects described by Feynman diagrams, to a deeper level which involves the full mathematical structure of the two theories (often called M-theory on the string theory side).

Sinead Keegan and Werner Nahm used techniques from conformal quantum field theory to work out aspects of a relation between modular forms and algebraic K-theory, which had been conjectured by Nahm and studied by several mathematicians in Bonn and Dublin in 2010. The mathematicians discovered that Nahm's ideas are very productive but not quite right, but no clearer picture has emerged yet. Nevertheless, work at Harvard uncovered unexpected relations to gauge theory and string theory.

Volker Braun's work made an important contribution to removing an inconsistency between string theory and some basic facts we know about nature. String theory explains the variety of natural forces by some intricate geometry in higher dimensions, but in general such geometrical structures are unstable. A stabilizing mechanism had been proposed, but it was not clear that it can work in situations where we can trust our mathematical understanding. Braun now gave a positive answer to this question.

Since Schrödinger's lectures on 'What is Life?', DIAS has been a place where the senior professors could make occasional forays into other disciplines, where creative thinking by outsiders could give a new impetus. Tony Dorlas has helped to make a detailed understanding of global warming accessible to the average physicist by a description which is sufficiently simple but contains the essential features. Werner Nahm was motivated to look into chronological issues by recent work which showed strong links between changes in climate and society in the Roman and Medieval eras. To extend this work to the difficult periods in earlier world history one needs reliable dates for migrations, agricultural collapse, etc., which so far have not been available before 1000 BC. One Assyrian text which originally provided such dates was found a century ago. Due to its fragmentary state and insufficient attention to certain features of mathematical notation its content was not fully exploited. Nahm's new interpretation may tip the balance in favour of one of the currently entertained chronologies.

In 2011 it will be even more difficult to maintain the quality of our research, since the funding for visitors and the possibilities for travel are restricted even more. Our research would get a strong boost, however, if STP and Cosmic Physics could get a single site. The increased interaction between astrophysicists and theoretical physicists would certainly lead to important advances in the understanding of nature and an increased international visibility of Irish science. We also hope that the current crisis will create greater incentives for a sharing of resources with the universities. This should alleviate the pressure on our library budget, and most importantly it could help to establish a sorely needed programme for high level graduate education in physics and mathematics. We always have been ready to dedicate a substantial part of our capacity to this aim, but our resources are too meagre to achieve something without collaboration or external funding. In 2010 there was no real progress because of internal frictions in other institutions, but we started a new initiative and hope for more success in 2011.

Scoil na Fisice Teoiriciúla i 2010 (ar leanúint)

D'úsáid Sinead Keegan agus Werner Nahm teicnící ón réimsetheoiric chandamach chomhfhoirmiúil chun gnéithe den ghaol idir foirmeacha modúla agus an K-teoiric ailgéabrach, rud a ndearna Nahm tuairimíocht air agus a scrúdaigh roinnt matamaiticeoirí in Bonn agus i mBaile Átha Cliath i 2010. Fuair na matamaiticeoirí amach go bhfuil tuairimí Nahm an-táirgiúil cé nach bhfuil siad láncheart, ach níl aon phictiúr níos soiléire againn go fóill. Mar sin féin, nochtaigh obair i Harvard gaolta le teoiric tomhsairí agus le sreangtheoiric nár tuaradh.

Rinne obair Volker Braun rud tábhachtach a chuir as an tslí neamhréir idir an tSreangtheoiric agus bunsonraí áirithe atá ar eolas againn faoin nádúr. Ag tarraingt ar roinnt céimseatan sna toisí arda déanfaidh an tSreangtheoiric míniú ar éagsúlacht na bhfórsaí nádúrtha, ach go ginearálta tá a leithéid de struchtúir chéimseata éagobhsaí. Moladh meicníocht dhaingnitheach ach ní raibh sé soiléir go bhféadfadh sé feidhmiú i gcomhthéacsanna inar féidir linn bheith muiníneach as ár dtuiscint matamaitice. Anois, thug Braun freagra dearfach ar an gceist seo.

Ó thug Schrödinger a léachtaí ar 'Cad is Beatha ann?' bhí ollúna sinsearacha san DIAS in ann aghaidh a thabhairt ó am go chéile ar dhisciplíní eile ina bhféadfaí machnamh cruthaitheach ón taobh amuigh fuinneamh nua a chur iontu. Chabhraigh Tony Dorlas leis an ngnáthfhisiceoir miontuiscint insroichte a bheith aige ar théamh domhanda ag déanamh cur síos áisiúil atá simplí go leor ach a chlédaíonn na sonraí riachtanacha. Le déanaí bhí obair ann a léirigh naisc idir athruithe aeráide agus athruithe sa tsochaí in aois na Rómhánach agus sa Mheánaois agus spreag seo Werner Nahm chun breathnú ar cheisteanna cróineolaíochta. Chun an obair seo a leathnú go dtí aoiseanna deacra is luaithe i stair an domhain, is gá dátaí iontaofacha a bheith ann d'imircí, do chliseachtaí curaíochta, srl., dátaí nach bhfuil ar fáil roimh 1000 BC go dtí seo. Céad bliain ó shin, aimsíodh téacs amháin Asaireach a thug a leithéid de dhátaí ach níor saothraíodh go hiomlán é de bharr é a bheith i smidiríní agus de bharr nár tugadh aire do ghnéithe áirithe dá nodaireacht mhatamaiticiúil. Seans go mbeidh an bua ag léamh nua Nahm ar an argóint le haghaidh cheann amháin de na cróineolaíochtaí reatha.

Beidh sé i bhfad níos deacra i 2011 caighdeán ár gcuid taighde a chothú toisc na srianta breise ar chistiú do chuariteoirí agus ar fhéidearthachtaí do thaisteal. Ach ba mhó an spreagadh a chuirfí lenár dtaighde dá bhféadfaí láithreán amháin a fháil do Scoileanna na Fisice Teoiriciúla agus na Fisice Cosmaí. Cinnte, as an idirghníomhaíocht bhreise idir réaltfhisiceoirí agus fisiceoirí teoriciúla thiocfadh dul chun cinn suntasacha i dtuiscint an nádúir agus b'fheiceálaí a bheadh eolaíocht na hÉireann go hidirnáisiúnta. Táimid dóchasach freisin go gcruthóidh an ghéarchéim reatha deiseanna spreagúla chun acmhainní a roinnt leis na hollscoileanna. Ba chóir go n-éascódh sé seo an brú ar ár mbuiséad leabharlaine, agus níos tábhachtaí, d'fhéadfadh sé cabhrú le bunú cláir oideachais ardleibhéil san fhisic agus sa mhatamaitic do chéimithe, rud atá de dhíth go mór. Bhíomar réidh i gcónaí cuid shubstaintiúil dár gcuid acmhainní a chaitheamh leis an gcuspóir seo, ach níl dóthain achmhainní againn chun aon rud a bhaint amach gan chomhoibriú nó cistiú seachtarach. Ní dhearnadh aon dul chun cinn ceart i 2010 de bharr easaontas inmheánach in institiúidí eile, ach chuireamar tús le tionscnamh nua agus táimid dóchasach go mbeidh sé níos rathúla i 2011.

Administration and Finance

The central administration section provides secretarial support to Council, the School Governing Boards and associated Committees. It is also responsible for Human Resources, General governance/compliance, Public Relations, Accommodation and Maintenance, Health and Safety.

Up to the end of 2010, central administration had lost four posts by virtue of the moratorium on public service numbers. This included the key post of HR Manager and the two posts in the booksales office. Staffing cuts were confined to the Administrative section to ensure that core research work was not compromised. However, this required a significant re-organisation of duties and considerable co-operation by the staff in the central administration office. There is concern that if further cuts are imposed, it will lead to an impact on research work.

A central Archive facility was established at 10 Burlington Road for the archival records of the schools of Theoretical Physics and Celtic Studies as well as historical administrative records relating to the establishment and development of DIAS. The archive includes important academic collections relating to Erwin Schrödinger and John L. Synge (Theoretical Physics) and D. Binchy, O. Bergin and T. F. Ó Rádhála (Celtic Studies). These collections have been catalogued and can now be accessed easily by internal and external researchers.

A safety audit was undertaken on a number of the DIAS sites. The principal recommendations arising from this audit have now been implemented and the remaining measures are being dealt with in order of priority.

The DIAS website was redesigned and includes some new features for managing conferences and other outreach events.

Approval was obtained from the Department to participate in the FÁS Work Placement Scheme and one intern commenced in the Library during the year. DIAS is very pleased to provide training opportunities for unemployed people and there are plans to offer additional internships in the coming year.

Finance

The attached financial statements report a loss of €300,162 for the year. This compares with a surplus of €174,809 in the year to 31 December 2009. The reason for this overspend in 2010 is due to a shortfall in the pay allocation and the refurbishment of Dunsink Observatory.

Total income for the Institute decreased from €15,824,018 in 2009 after adjusting for pensions to €13,267,262 in 2010.

This represents a decrease of €2,556,756 or 16.16% and the main decreases occurred in oireachtas grants and projects. The main reason for the decrease is due to a once-off capital grant allocation of €1.2m in 2009 to upgrade the seismic network equipment and systems.

The recurrent grant decreased by €692,000 in the year 2010 due to the cutbacks implemented by the Department of Education and Skills.

The Institute's total costs, after adjusting for the transfer to the capital reserves, also decreased from €15,649,209 in 2009 to €13,567,424 in 2010 i.e. a decrease of €2,081,785 or 13.30%.



The Registrar, Cecil Keaveney, Professor Dervilla Donnelly and Chairman of Council, Dr. Vincent Cunnane.

An Cláráitheoir, Cecil Keaveney, An tOllamh Dervilla Donnelly agus Cathaoirleach na Comhairle, An Dr. Vincent Cunnane.

Riarachán agus Airgeadas

Soláthraíonn an phríomhrannóg riaracháin tacaíocht rúnaíochta don Chomhairle, do Bhoird Bainistíochta na Scoileanna agus do Choistí gaolmhara. Tá sí freagrach freisin as Acmhainní Daonna, Rialachas/Comhlíonadh Ginearálta, Caidreamh Poiblí, Cóiríocht agus Cothabháil, Sláinte agus Sábháilteacht.

Suas go deireadh 2010 bhí ceithre phost caillte sa phríomhrannóg riaracháin de bharr an státchairde ar líon na bhfostaithe sa seirbhís phoiblí. San áireamh anseo bhí eochairphost an Bhainisteora ar Acmhainní Daonna agus dhá phost san oifig dhíolacháin leabhar. Bhí na laghduithe foirne teoranta don rannóg Riaracháin d'fhonn nach gcuirfí croíobair thaighde i gcontúirt. Ach bhí riachtanas dá bharr le hatheagrú suntasach a dhéanamh ar dhualgaisí agus le mórán comhoibríthe foirne. Tá imní ann go mbeadh tionchar ar obair thaighde dá gcuirfí giorruithe breise i bhfeidhm.

Bunaíodh áis lárnach Chartlainne ag 10 Bóthar Burlington do thaifid cartlainne na Scoileanna Fisice Teoiriciúla agus an Léinn Cheiltigh chomh maith le taifid riarachán a bhaineann le bunú agus le forbairt DIAS. Sa chartlann tá bailiúcháin tábhachtacha maidir le Erwin Schrödinger agus John L. Synge (Fisic Theoiriciúil) agus D. Binchy, O. Bergin agus T.F. Ó Rathaille (Léann Ceilteach). Tá na bailiúcháin seo cláraithe anois agus is féidir le taighdeoirí inmheánacha agus seachtracha teacht orthu go héascaí.

Rinneadh iniúchadh slándála ar roinnt de láithreáin DIAS. Tá príomhmholtaí na h-iniúchta seo curtha i bhfeidhm anois agus tá na cinn eile á ndéanamh in ord príorachta.

Athdhearadh suíomh Gréasáin DIAS agus tá roinnt gnéithe nua ann chun comhdhálacha agus ócáidí fhor-rochtaine eile a bhainistiú.

Fuarthas ceadú na Roinne a bheith páirteach i Scéim Shochrúcháin Oibre Fostaíochta FÁS agus thosaigh inteirn amháin sa Leabharlann i rith na bliana. Tá an-áthas ar DIAS deiseanna oiliúna a sholáthar do dhaoine dífhostaithe agus tá pleananna ann chun intéirneachtaí bhreise a sholáthar sa bhliain seo chugainn.

Airgeadas

Tuairiscíonn na ráitis airgeadais ag gabháil leis seo cailteanas €300,162 don bhliain. Is féidir seo a chur i gcomparáid le barrachas €174,809 sa bhliain go dtí 31 Nollaig 2009. Easnamh sa dáileadh páighe agus aithfheistiú Réadlainne Dhún Since is cúis leis an róchaitheamh seo i 2010.

Tar éis coigeartú le haghaidh pinsean, thit ioncaim iomlán na hInstitiúide ó €15,824,018 in 2009 go €13,267,262 in 2010.

Seo laghdú €2,556,756 nó 16.16% agus bhí na príomhlaghduithe i gcás dheontas an Oireachtais agus thionscadal. Leithdháileadh aon uair amháin deontas suntasach caipitil €1.2m don Institiúid i 2009 d'fhonn uasghrádú an trealaimh seismeolaíochta agus na gcóras is príomhchúis leis an laghdú seo.

Bhí laghdú €692,000 sa deontas athfhillteach sa bhliain 2010 de bharr na ngiorruithe siar a chuir an Roinn Oideachais agus Scileanna i bhfeidhm.

Tar éis coigeartú d'aistriú chuig cúlchistí caipitil, thit costais iomlána na hInstitiúide freisin ó €15,649,209 in 2009 go €13,567,424 in 2010, .i. laghdú €2,081,785 nó 13.30%.

Institute Staff

Council of the Institute

Chairman

V. Cunnane

Ex-Officio Members

H. Brady, President, UCD

N. Canny, President, RIA

J. Hegarty, Provost, TCD

Members Appointed by the Governing Boards of Constituent Schools

G. Wrixon

A. Jaffe

A. Ahlqvist

W. Nahm

L. Drury

F. Kelly

Governing Board of the School of Celtic Studies

Chairman

A. Ahlqvist

Senior Professors

L. Breatnach

F. Kelly

P. Breatnach

Appointed Members

D. Ó Baoill

M. Herbert

R. Ó hUiginn

E. Ní Dhea

K. Simms

N. Ó Muraíle

A. O Corrain

M. Ni Mhaonaigh

J. McCloskey

U. Mac Gearailt

Governing Board of the School of Theoretical Physics

Chairman

A. Jaffe

Senior Professors

T. Dorlas

D. O'Connor

W. Nahm

Appointed Members

A. Breslin

H. Nicolai

M. Grünewald

M. Tuite

P. Knight

L. Hau

R. Dijkgraaf

S. Shatashvili

D. Gilbert

Governing Board of the School of Cosmic Physics

Chairman

G. Wrixon

Senior Professors

L. Drury

E. Meurs

A. Jones

Appointed Members

A. Khan

O. Glaser

L. Enright

R. Perrott

M. Fowler

S. Cloetingh

L. Pedersen

C. Ceccarelli

E. Meehan

Administrative Staff of the Institute 2010

Registrar

C. Keaveney

Finance Officer

G. Forkin

Senior Administrative Officer

M. Burke

Assistant Finance Officer

R. Byrne

Clerks

M. Loughman

H. Moynihan

E. Barrett

M. Brennan

Senior Administrator

M. Ó Gliaáin

Principal Administrator

M. Seoighe (to 1 August)

Support Staff

G. Casey

R. Jones

B. Judge

P. McDonald

C. Doyle

T. Ó Gríofa

K. Earley

P. Wynne

Staff and Scholars of the School of Celtic Studies 2010

Senior Professors

F. Kelly

L. Breatnach

P. Breatnach (Director)

Professors

M. McKenna

P. Ó Macháin

Assistant Professors

A. Nic Dhonnchadha

M. O Riordan (Publications Officer)

Dialectologist

B. Ó Curnáin

Assistant Librarian

M. Kelly

Library Assistant

Ó. Ní Chanainn

School Administrator

E. Nic Dhonncha

Technical Staff

ISOS

A. O'Brien

IT Support

A. McCarthy (part-time)

S. McCullagh (part-time)

Bibliographer

A. Guilarte

Bergin Fellows

R. McLaughlin (to 8 May)

C. Downey

Scholars

N. White (Ireland)

F. Verstraten (Holland)

E. O'Flynn (Ireland)

A. Matheson (Canada)

H. Imhoff (Germany)

Institute Staff (continued)

Irish Research Council for the Humanities and Social Sciences (IRCHSS) Government of Ireland Fellowship

R. McLaughlin (from 1 October)

Professor Emeritus

M. Ó Murchú

Staff and Scholars of the School of Theoretical Physics 2010

Senior Professors

W. Nahm (Director)

T. Dorlas

D. O'Connor

Librarian

A. Goldsmith (to 14 August)

M. Williams (from 26 October)

School Administrator

M. Matthews

Systems Administrator

J. Bucas (contract)

Post-Doctoral Scholars

S. Keegan (Ireland) (from 1 July)

M. Beau (France) (from 5 October)

D. Foster (U.K.) SFI (from 1 October)

Pre-Doctoral Scholars

P. Abramski (Russia)

O. Smits (Netherlands)

Schrodinger Fellows

V. Braun (Germany)

S. Kovacs (Italy)

I. Lyberg (Sweden)

Project Staff

T. Kaltenbrunner (Austria) Marie Curie
Non-Commutative Geometry

M. Vachovski (Bulgaria) Marie Curie
Non-Commutative Geometry

R. Delgadillo Blando (Mexico) Marie Curie
Non-Commutative Geometry (from 15 June)

E. Radu (Bulgaria) SFI *Soliton Solutions to Higher Dimensional Gravitating Gauged Scalar Field Systems, with applications to AdS/DFT and Branes* (from 1 September)

Embark Initiative Postdoctoral Research Fellows

V. Filev (Bulgaria) "*Holographic Study of the Phase Structure and Universal Properties of Strongly Coupled, Flavoured, Large N Yang-Mills Gauge Theory*" (to 31 July)

V. Filev (Bulgaria) "*Phase Structure of Flavored Holographic Gauge Theory*" (from 1 August)

V. Dotsenko (Russia) "*Algebra and Representation Theory of Compatible Algebraic Structures*" (to 29 September)

Staff and Scholars of the School of Cosmic Physics 2010

Senior Professors

L. Drury (Director)

A. Jones

E. Meurs (to 1 December)

Professors

T. Ray

F. Aharonian

Z. Martinek

Assistant Professors

S. Lebedev

B. O'Reilly

Fellows

M Chernyakova (Russia)

M. Muller (South Africa)

A. Bamba (Japan)

A. Scholz (Germany)

Experimental Officers

T. Blake
S. Dudzinski

Senior Technical Assistants

C. Horan
M. Smyth
G. Wallace (to 9 July)

Technical Assistants

E. Flood
A. Grace
H. O'Donnell
L. Collins
C. Hogg

IT Technician

S. O'Sullivan (to 5 November)
J. Barrett (from 17 November)

Clerical Staff

P. Daly
A. Sewielska (contract)

Scholars

M. Miensopust (Germany)
J. Mackey (Ireland) (to 31 March)
J. Schmoltdt (Germany)
S. Delaney (Ireland)
D. Malyshev (Ukraine) (to 31 December)
P. Share (South Africa) (to 31 July)
D. Khoza (South Africa)
L. Fallon (Ireland)
G. Polat (Turkey)
L. Barreyre (France) (to 2 February)
J. Buckenmeyer (France)
E. Mandolesi (Italy)
M. Agius (Malta)
N. Noorae (Iran)
F. le Pape (France)
D. Kiyani (Turkey)

G. Costigan (Ireland)
A. Schaeffer (Canada)
O. Soucek (Czech Republic) (from 1 January to 31 December)
R. Ainsworth (USA) (from 1 November)
P. Dawson (Ireland) (from 1 November)

Project Staff

E. Whelan IRCSET
E. Roux SFI project (to 31 July)
M. Kennedy IGGP
K. Rochford e-INIS
D. Coffey IRCSET
G. Murphy SFI project
A. Caratti O Garatti SFI project
C. Tirel SFI project
J. Fulla TOPOMED
J. Vozar SFI project
J. Morin MIRI
A. Scaife MIRI
R. Garcia Lopez SFI project (from 10 June to 9 November)
V. Bosch Ramon EU Marie-Curie (from 1 July)

Professor Emeritus

P. Readman
D. O'Sullivan
A. Thompson

Vacation Students

Maryam Hussein (from 1 June to 31 August)

Temporary Support Staff

Mairead O'Connor (to 29 January)



Financial Statements for year ended 31 December 2010

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Statement of Responsibilities of the Council

The Council of the Dublin Institute for Advanced Studies is required under section 28(2) of the Institute for Advanced Studies Act 1940 to prepare financial statements in such form as shall be approved by the Minister for Education & Skills with the concurrence of the Minister for Finance.

In preparing those financial statements the Council is required to:

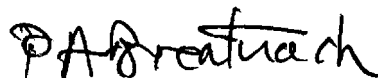
- select suitable accounting policies and apply them consistently;
- make judgements and estimates that are reasonable and prudent;
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the Institute will continue in operation; and
- disclose and explain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

The Council is responsible for keeping proper books of account which disclose with reasonable accuracy at any time the financial position of the Institute and which enable it to ensure that the financial statements comply with Section 28(2) of the Act. The Council is responsible for safeguarding the assets of the Institute and for taking reasonable steps for the prevention and detection of fraud and other irregularities.



Vincent Cunnane

Chairman - Council of the Institute



Pádraig Breatnach

Council Member

Statement on Internal Financial Control

Responsibility for Internal Financial Control

On behalf of the Council of the Institute I acknowledge our responsibility for ensuring that an effective system of internal financial control is maintained and operated.

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

Key Control Procedures

The Council has taken steps to ensure an appropriate control environment by

- clearly defining management responsibilities;
- establishing formal procedures for reporting significant control failures and ensuring appropriate corrective action.

The Council has established processes to identify and evaluate business risks by

- identifying the nature, extent and financial implication of risks facing the Institute including the extent and categories which it regards as acceptable;
- assessing the likelihood of identified risks occurring;
- assessing the Institute's ability to manage and mitigate the risks that do occur;
- assessing the costs of operating particular controls relative to the benefit obtained.

The system of internal financial control is based on a framework of regular management information, administrative procedures including segregation of duties, and a system of delegation and accountability.

In particular it includes:

- comprehensive budgeting system with an annual budget which is reviewed and agreed by the Council of the Institute;
- regular reviews by the Council of periodic and annual financial reports which indicate financial performance against forecasts;

- setting targets to measure financial and other performance;
- adherence to public procurement guidelines;
- regular reviews by the Council of external research projects.

In June 2010 the Audit Committee met to review internal control matters and issues raised by the Comptroller and Auditor General.

In addition, the 2010 report on internal control systems as provided by the Internal Auditor has been made available to Members of Council.

The Council's monitoring and review of the effectiveness of the system of internal financial control is informed by the work of the internal auditor, the Registrar and other officers within the Institute who have responsibility for the development and maintenance of an appropriate financial control framework and comments made by the Audit Committee and the Comptroller and Auditor General in his management letter or other reports.

Annual Review of Controls

I confirm that in the year ended 31st December 2010 Council conducted a review of the effectiveness of the internal financial controls of the Institute.

Signed on behalf of the Council of the Institute



Vincent Cunnane

Chairman - Council of the Institute

28 September 2011

Report of the Comptroller and Auditor General

for presentation to the Houses of the Oireachtas

I have audited the financial statements of the Dublin Institute for Advanced Studies for the year ended 31 December 2010 under the Institute for Advanced Studies Act 1940. The financial statements, which have been prepared under the accounting policies set out therein, comprise the Accounting Policies, the Income and Expenditure Account, the Statement of Total Recognised Gains and Losses, the Balance Sheet, the Cash Flow Statement and the related notes. The financial reporting framework that has been applied in their preparation is applicable law and Generally Accepted Accounting Practice in Ireland.

Responsibilities of the Council

The Council is responsible for the preparation of the financial statements, for ensuring that they give a true and fair view of the state of the Institute's affairs and of its income and expenditure, and for ensuring the regularity of transactions.

Responsibilities of the Comptroller and Auditor General

My responsibility is to audit the financial statements and report on them in accordance with applicable law.

My audit is conducted by reference to the special considerations which attach to State Bodies in relation to their management and operation.

My audit is carried out in accordance with the International Standards on Auditing (UK and Ireland) and in compliance with the Auditing Practices Board's Ethical Standards for Auditors.

Scope of Audit of the Financial Statements

An audit involves obtaining evidence about the amounts and disclosures in the financial statements, sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. This includes an assessment of

- whether the accounting policies are appropriate to the Institute's circumstances, and have been consistently applied and adequately disclosed
- the reasonableness of significant accounting estimates made in the preparation of the financial statements, and
- the overall presentation of the financial statements.

I also seek to obtain evidence about the regularity of financial transactions in the course of audit.

In addition, I read all the financial and non-financial information in the Annual Report to identify material inconsistencies with the audited financial statements. If I become aware of any apparent material misstatements or inconsistencies I consider the implications for my report.

Opinion on the Financial Statements

In my opinion, the financial statements, which have been properly prepared in accordance with Generally Accepted Accounting Practice in Ireland, give a true and fair view of the state of the Institute's affairs at 31 December 2010 and of its income and expenditure for the year then ended.

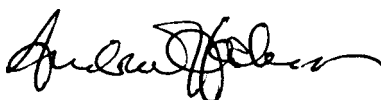
In my opinion, proper books of account have been kept by the Institute. The financial statements are in agreement with the books of account.

Matters on which I Report by Exception

I report by exception if

- I have not received all the information and explanations I required for my audit, or
- my audit noted any material instance where moneys have not been applied for the purposes intended or where the transactions did not conform to the authorities governing them, or
- the information given in the Institute's Annual Report for the year for which the financial statements are prepared is not consistent with the financial statements, or
- the Statement on Internal Financial Control does not reflect the Institute's compliance with the Code of Practice for the Governance of State Bodies, or
- I find there are other material matters relating to the manner in which public business has been conducted.

I have nothing to report in regard to those matters upon which reporting is by exception.



Andrew Harkness

For and on behalf of the Comptroller and Auditor General

30 September 2011

Accounting Policies

GENERAL

The Institute was established under the Institute for Advanced Studies Act, 1940.

Its functions include the provision of facilities for the furtherance of advanced studies and the conduct of research in specialised branches of knowledge.

It comprises three Schools - Celtic Studies, Theoretical Physics and Cosmic Physics.

ACCOUNTING POLICIES

1. Basis of Accounting

The financial statements have been prepared on an accruals basis under the historical cost convention and in accordance with generally accepted accounting practice. Financial Reporting Standards recommended by the recognised accounting bodies are adopted as they become applicable.

2. Oireachtas Grants

Income is shown on a cash receivable basis.

3. Fixed Assets

Fixed Assets comprise the furniture, equipment, computers, supercomputer and motor vehicles of the Institute and are shown at cost less accumulated depreciation. The rates of depreciation, calculated on a straight line basis, are as follows :-

Furniture and Equipment	10%
Computers	25%
Motor Vehicles	25%
Supercomputer	33.3%

Premises occupied by the Institute are leased from the Office of Public Works.

4. Capital Reserve

The capital reserve represents the unamortised value of income used for the purchase of Fixed Assets.

5. Library

Expenditure on library books and materials is written off in the year in which it is incurred.

6. Publications

Expenditure on publications is written off in the year in which it is incurred.

7. Superannuation

The Dublin Institute for Advanced Studies operates a defined benefit pension scheme which is funded annually on a pay as you go basis from monies available to it, including monies provided by the Department of Education and Skills and from contributions deducted from staff salaries.

Pension costs reflect pension benefits earned by employees in the period and are shown net of staff pension contributions which are retained by the Dublin Institute for Advanced Studies. An amount corresponding to the pension charge is recognised as income to the extent that it is recoverable, and offset by grants received in the year to discharge pension payments.

Actuarial gains or losses arising on scheme liabilities are reflected in the Statement of Recognised Gains and Losses and a corresponding adjustment is recognised in the amount recoverable from the Department of Education and Skills.

Pension liabilities represent the present value of future pension payments earned by staff to date. Deferred pension funding represents the corresponding asset to be recovered in future periods from the Department of Education and Skills.

8. Projects

The Dublin Institute for Advanced Studies receives external funding from industry, government bodies and the European Commission. A chart of accounts is maintained for each project.

Income and expenditure on projects is reflected in the financial statements in the year to which they relate. A surplus or deficit on a project is reflected in the financial statements when realised.

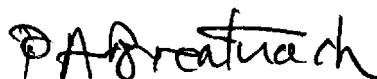
Income and Expenditure Account

	Notes	2010 €	2009 €
Income			
Oireachtas Grant		7,505,846	9,161,302
Net deferred funding for pensions	11.c	2,164,149	1,955,026
Sales of Publications		49,882	52,515
Projects	2	3,103,885	4,096,104
Other	3	63,438	103,071
Contribution-Hosting of Bluegene		380,062	456,000
		13,267,262	15,824,018
Transfer (to)/from Capital Reserve	5	913,223	(435,988)
		14,180,485	15,388,030
Expenditure			
School of Celtic Studies	1	1,566,278	1,687,431
School of Theoretical Physics		1,199,335	1,297,841
School of Cosmic Physics		4,993,356	6,014,710
Administration		6,721,678	6,213,239
		14,480,647	15,213,221
(Deficit)/Surplus for year		(300,162)	174,809
Balance at 1 January		1,217,171	1,042,362
Balance at 31 December		917,009	1,217,171
Statement of Total Recognised Gains and Losses			
		2010	2009
(Deficit)/Surplus for the year		(300,162)	174,809
Experience (gains)/losses on pension scheme liabilities		(1,998,000)	(328,000)
Changes in assumptions underlying the present value of pension scheme liabilities		(18,000)	2,445,000
Actuarial Loss on Pension Liabilities	11.b	(2,016,000)	2,117,000
Adjustment to Deferred Pension Funding		2,016,000	(2,117,000)
Total Recognised (Loss)/Gain for the Year		(300,162)	174,809

The Statement of Accounting Policies and Notes 1 to 14 form part of these financial statements.



Vincent Cunnane
Chairman - Council of the Institute



Pádraig Breatnach
Council Member

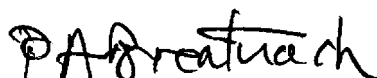
Balance Sheet

	Notes	2010 €	2009 €
Assets			
Fixed Assets	4	2,201,420	3,114,643
Current Assets:			
Cash on Hand and at Bank		5,201,182	6,384,589
Debtors and Prepayments	7	330,406	392,143
Project Debtors	2	136,828	54,903
Total Assets		7,869,836	9,946,278
Less Liabilities			
Creditors - Amounts falling due within one year			
Creditors and Accruals	6	2,001,233	1,264,714
Project Creditors	2	2,687,576	4,288,269
Creditors - Amounts falling due after one year			
	6	62,598	61,481
Total Liabilities Before Pensions		4,751,407	5,614,464
Assets Less Liabilities Before Pensions		3,118,429	4,331,814
Deferred Pension funding	11.c	36,736,000	32,556,000
Pension Liabilities	11.b	(36,736,000)	(32,556,000)
Net Assets		3,118,429	4,331,814
Financed by:			
Income and Expenditure Account		917,009	1,217,171
Capital Reserve	5	2,201,420	3,114,643
		3,118,429	4,331,814

The Statement of Accounting Policies and Notes 1 to 14 form part of these financial statements.



Vincent Cunnane
Chairman - Council of the Institute



Pádraig Breatnach
Council Member

Cash Flow Statement

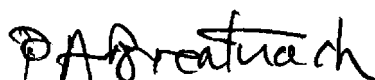
	Notes	2010 €	2009 €
Reconciliation of Operating (Deficit)/Surplus to Net Cash Inflow from Operating Activities			
(Deficit)/Surplus for Year		(300,162)	174,809
Interest Received	3	(41,662)	(89,415)
Increase in Creditors		737,636	218,303
Decrease in Debtors		61,737	301,023
Net (Decrease)/Increase in Research Programmes and Fees		(1,682,618)	1,600,221
Depreciation	4	1,057,271	1,084,465
Capital Reserve Transfer	5	(913,223)	435,988
Loss on Disposal		174,815	25
Net Cash (Outflow)/Inflow from Operating Activities		(906,206)	3,725,419
Cash Flow Statement			
Net Cash (Outflow)/Inflow from Operating Activities		(906,206)	3,725,419
Returns on Investments and Servicing of Finance			
Bank Interest Received	3	41,662	89,415
Capital Expenditure			
Purchase of Tangible Assets	4	(318,863)	(1,520,478)
(Decrease)/Increase in Cash		(1,183,407)	2,294,356
Reconciliation of Net Cash Flow to Movement in Net Funds			
(Decrease)/Increase in Cash		(1,183,407)	2,294,356
Net Funds at 1 January		6,384,589	4,090,233
Net Funds at 31 December		5,201,182	6,384,589

	Cash at bank and in hand €	Bank Overdraft €	Total €
Analysis of Change in Net Funds			
At Beginning of Year 2010	6,384,589	-	6,384,589
Cash Flows	(1,183,407)	-	(1,183,407)
At End of Year 2010	5,201,182	-	5,201,182

The Statement of Accounting Policies and Notes 1 to 14 form part of these financial statements.



Vincent Cunnane
Chairman - Council of the Institute



Pádraig Breatnach
Council Member

Notes to the Financial Statements

1. Detailed Analysis of Income & Expenditure for the year ended 31/12/2010

	Notes	School of Celtic Studies €	School of Theoretical Physics €	School of Cosmic Physics €	Adminis- tration €	2010 Total €	2009 Total €
INCOME							
Oireachtas Grants		1,822,094	1,061,999	3,057,188	1,564,565	7,505,846	9,161,302
Net Deferred Funding for Pensions	11.c	(364,894)	(106,066)	(715,871)	3,350,980	2,164,149	1,955,026
Sales of Publications		49,882	-	-	-	49,882	52,515
Project Income	2.a	16,834	230,750	2,809,553	46,748	3,103,885	4,096,104
Other	3	-	-	12,356	51,082	63,438	103,071
Contribution-Hosting of Bluegene		-	-	-	380,062	380,062	456,000
		1,523,916	1,186,683	5,163,226	5,393,437	13,267,262	15,824,018
Transfer (to)/from Capital Reserve					913,223	913,223	(435,988)
		1,523,916	1,186,683	5,163,226	6,306,660	14,180,485	15,388,030
EXPENDITURE							
Payroll Costs	8	1,416,703	860,977	1,990,549	717,031	4,985,260	5,538,295
Pension Costs	11.a	(44,128)	(38,817)	(72,952)	3,437,299	3,281,402	2,942,163
Pension Project Costs	11.a	(279)	(5,696)	(82,994)	-	(88,969)	(19,161)
Project Costs	2.a	49,733	240,173	2,890,092	-	3,179,998	3,904,099
Hosting Costs Bluegene		-	-	-	310,680	310,680	298,835
Library and Book Storage		40,293	101,816	63,371	14,910	220,390	220,262
Depreciation	4	-	-	-	1,057,271	1,057,271	1,084,465
Rent, Rates and Insurance		-	-	-	196,249	196,249	176,030
General Expenses	9	14,439	14,624	59,690	217,625	306,378	260,575
Travel and Seminar Expenses		24,505	12,572	77,565	7,892	122,534	147,941
Premises Maintenance and Security		-	-	-	292,480	292,480	238,513
Computer and Internet Expenses		3,009	6,493	57,582	75,282	142,366	94,273
Fuel Light and Power		-	-	-	136,283	136,283	158,280
Postage and Telephone		-	-	-	35,961	35,961	37,948
Stationery		13,113	1,449	3,273	39,065	56,900	40,121
Publications		48,075	-	661	-	48,736	53,495
Advertising		560	-	-	5,452	6,012	3,834
Minor Office Equipment		255	5,744	6,519	3,383	15,901	33,228
Loss on Disposal	4	-	-	-	174,815	174,815	25
		1,566,278	1,199,335	4,993,356	6,721,678	14,480,647	15,213,221
SURPLUS/(DEFICIT) FOR YEAR		(42,362)	(12,652)	169,870	(415,018)	(300,162)	174,809
Balance at 1 January		312,710	111,872	962,846	(170,258)	1,217,171	1,042,362
Balance at 31 December		270,348	99,220	1,132,716	(585,276)	917,009	1,217,171

Notes to the Financial Statements (continued)

2. (a) Projects

	2010	2009			
	€	€			
Opening Balances	4,233,366	2,686,109			
Receipts	1,421,267	5,643,361			
	5,654,633	8,329,470			
Closing Balances (Project Debtors €136,828 Project Creditors €2,687,576)	(2,550,748)	(4,233,366)			
Applied as Income	3,103,885	4,096,104			
Income Allocation					
School of Celtic Studies	16,834	26,079			
School of Theoretical Physics	230,750	176,800			
School of Cosmic Physics	2,809,553	3,684,627			
	3,057,137	3,887,506			
Administration	46,748	208,598			
Total Project Income	3,103,885	4,096,104			
Project Costs					
	Celtic	Theoretical	Cosmic	2010	2009
	Studies	Physics	Physics	Total	Total
	€	€	€	€	€
Payments to Partners/Associates	-	-	1,657,858	1,657,858	2,653,984
Salaries/Scholarships	8,328	215,020	896,872	1,120,220	956,723
Travel	539	22,592	204,194	227,325	231,880
Other	40,866	2,561	131,168	174,595	61,512
Total Project Cost	49,733	240,173	2,890,092	3,179,998	3,904,099

2.(b) Project Detail

	Opening		Recurrent	Applied	Closing
	Balance	Receipts	Expenditure	as Income	Balance
	€	€		(including	€
				Capital)	
				€	
School of Celtic Studies					
Irish Script on Screen	18,087	8,000	8,725	8,725	17,362
IRCHSS G Manning Award	5,892	(5,892)	-	-	-
Celtic Summer School	2,016	7,350	60	60	9,306
Roisin Mclaughlin IRCHSS Fellow	-	16,677	8,328	8,049	8,628
Ogham	-	-	32,620	-	-
Total Celtic Studies	25,995	26,135	49,733	16,834	35,296

Notes to the Financial Statements (continued)

2.(b) Project Detail (continued)

	Opening Balance €	Receipts €	Recurrent Expenditure	Applied as Income (including Capital) €	Closing Balance €
School of Theoretical Physics					
S Ni Chiagain -IRCSET	2,944	-	-	-	2,944
Seckin Kurkcuonglu	1,852	(1,852)	-	-	-
Subrata Bal -Fellow	9,974	(9,974)	-	-	-
Francis Dolan -IRCSET Fellow	9,874	(9,874)	-	-	-
Oliver Rosten -IRCSET Fellow	9,608	(9,608)	-	-	-
SFI Bethe Ansatz	25,784	-	-	-	25,784
Non-Commutative Geometry	131,461	-	120,223	115,904	15,557
Veselin Filev -IRCSET Fellow	31,262	(5,310)	26,857	24,756	1,196
V Dotsenko -IRCSET Fellow	31,637	5,440	38,909	37,077	-
T Tchrakian SFI 07 Award	106,585	-	27,289	26,590	79,995
Babar Qureshi -IRCSET Fellow	(2,573)	12,037	-	-	9,464
Veselin Filev Inspire Award PD2010	-	75,051	26,895	26,423	48,628
Total Theoretical Physics	358,408	55,910	240,173	230,750	183,568
School of Cosmic Physics					
Gamma Ray Bursts	23,984	-	5,391	5,391	18,593
Total Astronomy	23,984		5,391	5,391	18,593
Dos Max	11,849	(9,420)	(464)	(464)	2,893
PRTL-CosmoGrid	908,476	(386,094)	69,960	13,326	509,056
Nam Conference	16,884	8,917	9,647	9,647	16,154
Jet 4 (Central Engines...Stars)	1,241	-	1,655	1,241	-
Jetset	20,630	6,913	17,513	20,241	7,302
Jonathon Mackay -IRCSET Postgrad	952	-	-	952	-
SFI Felix GNM	72,997	-	44,970	44,970	28,027
SFI Cores to Disks	126,505	-	100,007	97,794	28,711
Paul Dempsey - IRCSET Fellow	17,876	(17,876)	-	-	-
E-Inis -PRTL Cycle 4	1,804,525	788,266	1,720,881	1,718,223	874,568
Linda Podio -IRCSET Fellow	12,649	(12,649)	-	-	-
Pic Simulations L Drury SFI 08	111,013	61,649	56,820	56,561	116,101
D Coffey -IRCSET Fellow	43,967	38,048	48,819	46,989	35,026
KM3Net -PP	7,977	8,000	7,156	7,156	8,821
E-Whelan Inspire	109,355	18,153	68,183	65,537	61,971
NGST/MIRI Project	(22,796)	62,553	130,598	129,931	(90,174)
Cosmic Ray Origin	(12,119)	26,835	2,338	2,338	12,378
Dobies	(2,962)	-	1,699	1,699	(4,661)
KVM3Net - Design Study	(845)	-	-	-	(845)
Valenti EC Reintegration Grant	-	128,371	37,241	37,835	90,536
Aleks Scholz SFI Brown Dwarfs	-	37,450	5,623	6,943	30,507
Alessio Caratti Reintegration Grant	-	22,500	-	-	22,500
Total Astrophysics	3,228,174	781,616	2,322,646	2,260,919	1,748,871

Notes to the Financial Statements (continued)

2.(b) Project Detail (continued)

	Opening Balance €	Receipts €	Recurrent Expenditure	Applied as Income (including Capital) €	Closing Balance €
Samtex	81,449	-	27,113	27,113	54,336
SFI Samtex	12,918	-	-	-	12,918
Geo External Funds	36,063	76,097	54,277	77,374	34,786
Marem SFI -X Garcia/NUIG	1,632	-	-	-	1,632
SFI Joint RFP	115,848	-	66,861	65,727	50,121
SFI Isle 2 P. Readman	97,741	-	32,719	32,719	65,022
Geophysics Schools Seismology	11,634	12,506	8,024	8,024	16,116
D Khosa -BHP Bill Support	26,266	-	21,348	21,348	4,918
Dynamics of Cont. SFI Lebedev	83,865	39,823	62,710	60,871	62,817
Indepth4 SFI A. Jones	119,530	35,237	86,133	90,003	64,764
TopoMed	8,828	93,041	93,265	91,446	10,423
Regional Seismic SFI 09 Lebedev	14,642	68,900	42,544	42,544	40,998
SFI Picasso	(6,649)	-	9,191	9,191	(15,840)
Irish Geoscience Graduate Programme	(206)	-	25,102	25,102	(25,308)
Pieter Share -CSIR Support	(6,756)	15,278	7,582	7,582	940
Orfeus Conference	-	19,724	19,724	19,724	-
CTBTO Grant	-	11,223	5,462	11,223	-
IRETHERM SFI	-	185,777	-	-	185,777
Total Geophysics	596,805	557,606	562,055	589,991	564,420
Total Cosmic Physics	3,848,963	1,339,222	2,890,092	2,856,301	2,331,884
Total DIAS	4,233,366	1,421,267	3,179,998	3,103,885	2,550,748

3. Other Income

	2010 €	2009 €
Bank Interest	41,662	89,415
Fees and Grants	5,835	3,201
Other	15,941	10,455
Total	63,438	103,071

Notes to the Financial Statements (continued)

4. Fixed Assets

	Furniture & Equipment	Motor Vehicles	Computers	Total
Cost	€	€	€	€
Opening Balance 1/1/2010	3,534,987	53,200	4,286,558	7,874,745
Additions	167,157	-	151,706	318,863
Disposals*	(36,279)	-	(2,361,642)	(2,397,921)
	3,665,865	53,200	2,076,622	5,795,687
Depreciation				
Opening Balance 1/1/2010	1,737,617	52,465	2,970,020	4,760,102
Charge 2010	230,329	735	826,207	1,057,271
Disposals*	(25,033)	-	(2,198,073)	(2,223,106)
	1,942,913	53,200	1,598,154	3,594,267
Net book value 31/12/2010	1,722,952	-	478,468	2,201,420
Net book value 31/12/2009	1,797,370	735	1,316,538	3,114,643

* Note

In 2007 the DIAS invested in a supercomputer at a cost of €2,322,279 to be used by the research staff within the Institute and other research staff working in Ireland.

As high-end equipment depreciates at a much faster rate than generic ICT equipment the supercomputer is now obsolete. Included in the disposal figure above is the write off of the supercomputer.

5. Capital Reserve

	2010	2009
	€	€
Balance at 1 January	3,114,643	2,678,655
Transfer from/(to) Income and Expenditure Account		
Income allocated to acquire fixed assets	318,863	1,520,478
Amortisation in line with asset depreciation	(1,057,271)	(1,084,465)
Amount released on disposals	(174,815)	(25)
	(913,223)	435,988
Balance at 31 December	2,201,420	3,114,643

Notes to the Financial Statements (continued)

6. Creditors due within twelve months

	2010	2009
	€	€
Trade Creditors	461,422	457,927
Accruals	1,287,496	559,331
Sundry	3,119	514
VAT	15,992	20,672
Revenue Creditors	165,479	169,270
Pension Control Account	67,725	-
Deferred Income	-	57,000
	2,001,233	1,264,714
Creditors due after twelve months	2010	2009
	€	€
These comprise:		
Vernam Hull Bequest	60,137	59,021
Carmody Fund	2,461	2,460
	62,598	61,481

The funds relating to the above are held on deposit. No amounts were utilised during the year.

7. Debtors

	2010	2009
	€	€
Prepayments	243,931	208,375
Contributions to Bluegene	38,000	142,616
Book Sales Debtors	5,050	5,813
Sundry	23,088	20,378
Accrued Income	20,337	14,961
	330,406	392,143

8. Payroll Costs

	Celtic Studies	Theoretical Physics	Cosmic Physics	Admin.	2010 Total	2009 Total
	€	€	€	€	€	€
Salaries/Wages	1,302,441	798,356	1,865,500	717,031	4,683,328	5,114,877
Scholarships	108,125	53,481	114,144	-	275,750	249,204
Visitors	6,137	9,140	10,905	-	26,182	174,214
	1,416,703	860,977	1,990,549	717,031	4,985,260	5,538,295

Notes to the Financial Statements (continued)

9. General Expenses

	Celtic Studies	Theoretical Physics	Cosmic Physics	Admin.	2010 Total	2009 Total
	€	€	€	€	€	€
Miscellaneous	4,659	3,592	46,519	161,703	216,473	141,822
Promotions/ Lunches	6,718	523	3,009	1,965	12,215	20,761
Professional Fees	-	-	-	24,362	24,362	40,118
Training	3,062	10,509	10,162	3,799	27,532	13,439
Audit Fee	-	-	-	17,672	17,672	17,672
Bank Charges	-	-	-	3,351	3,351	3,289
Bad Debt W/O	-	-	-	-	-	17,861
Health & Safety	-	-	-	4,773	4,773	5,613
	14,439	14,624	59,690	217,625	306,378	260,575

10. Leasing

Operating Leases

The premises occupied by the Institute are leased from the Office of Public Works.

The premises include Observatory House Dunsink, 5 Merrion Square, 9-10 Burlington Road and 31 Fitzwilliam Place.

There is a term of 86 years left on the lease for Observatory House and the other leases are renewed on an annual basis.

The commitment on foot of such leases in respect of 2011 is €113,609.

	Annual Rent
	€
Office of Public Works Leases	
Observatory House Dunsink	330
5 Merrion Square	5,022
9-10 Burlington Road	50,167
31 Fitzwilliam Place	58,090
	113,609

Notes to the Financial Statements (continued)

11. Pension Costs

	2010 (€'000)	2009 (€'000)
a) Analysis of total pension costs charged to Expenditure		
Current Service Cost	1,461	1,239
Interest on Pension Scheme Liabilities	2,002	1,902
Employee Contributions*	(271)	(218)
	3,192	2,923

* Note

Pension contributions amounting to €89,000 were deducted from project staff during 2010.

	2010 (€'000)	2009 (€'000)
b) Movement in Net Pension Liability during the financial year		
Net Pension Liability at 1 January	(32,556)	(32,718)
Current Service Cost	(1,461)	(1,239)
Interest Costs	(2,002)	(1,902)
Actuarial loss/(gain)	(2,016)	2,117
Pensions paid in the year	1,299	1,186
Net Pension Liability at 31 December	(36,736)	(32,556)

c) Deferred Funding for Pensions

DIAS recognises these amounts as an asset corresponding to the unfunded deferred liability for pensions on the basis of the set of assumptions described above and a number of past events. These events include the statutory basis for the establishment of the pension scheme, and the policy and practice in relation to funding public service pensions including contributions by employees and the annual estimates process. While there is no formal agreement regarding these specific amounts with the Department of Education and Skills, the DIAS has no evidence that this funding policy will not continue to meet such sums amount in accordance with current practice.

The Net Deferred Funding for Pensions recognised in Income and Expenditure Account was as follows:

	2010 (€'000)	2009 (€'000)
Funding recoverable in respect of current year pension costs	3,463	3,141
State Grant applied to pay pensioners	(1,299)	(1,186)
	2,164	1,955

The deferred funding asset for pensions as at 31 December 2010 amounted to €36.7 million (2009: €32.6 million).

d) History of defined benefit obligations

	2010 (€'000)	2009 (€'000)	2008 (€'000)
Defined benefit obligations	36,736	32,556	32,718
Experience (gains)/losses on Scheme Liabilities amount.	(1,998)	(328)	(1,258)
Percentage of Scheme Liabilities.	(5.40%)	(1.01%)	(3.84%)

The cumulative actuarial (gain)/loss recognised in the Statement of Total Recognised Gains and Losses amounts to (€3,507,000).

11. Pension Costs (continued)

e) General Description of the Scheme

The pension scheme is a defined benefit final salary pension arrangement with benefits and contributions defined by reference to current "model" public sector scheme regulations.

The scheme provides a pension (eightieths per year of service), a gratuity or lump sum (three eightieths per year of service) and spouse's and children's pensions. Normal Retirement Age is a member's 65th birthday, and pre 2004 members have an entitlement to retire without actuarial reduction from age 60. Pensions in payment (and deferment) normally increase in line with general public sector salary inflation.

The valuation used for FRS17 disclosures has been based on a full actuarial valuation by a qualified independent actuary taking account of the requirements of the FRS in order to assess the scheme liabilities at 31 December 2010.

The principal actuarial assumptions were as follows:

	At 31/12/10	At 31/12/09	At 31/12/08
Rate of increase in salaries	3.50%	4.00%	4.00%
Rate of increase in pensions in payment	3.25%	4.00%	4.00%
Discount Rate	5.25%	6.00%	5.70%
Inflation Rate	2.00%	2.25%	2.25%

The mortality basis adopted allows for improvements in life expectancy over time, so that the life expectancy at retirement will depend on the year in which a member attains retirement age (age 65). The table below shows the life expectancy for members attaining age 65 in 2010 and 2040.

Year of attaining age 65	2010	2040
Life expectancy - male	86.0	88.8
Life expectancy - female	88.9	90.8

12. Disclosure of Transactions

The Council of the Institute adopts procedures in accordance with guidelines issued by the Department of Finance in relation to the disclosure of interests by Council Members and these procedures have been adhered to by the Council Members during the year. No Council Member has declared an interest.

Notes to the Financial Statements (continued)

13. Disclosure of Council Members/Registrar Salary, Fees and Expenses

	Total Remuneration €	Total Expenses €
Council Member		
Professor Dervilla Donnelly	-	-
Dr Vincent Cunnane w/e from 01/07/2010	-	486
Members Appointed by the Governing Boards of Constituent Schools		
Professor Gerry Wrixon	-	2,082
Professor Arthur Jaffe	-	468
Professor Anders Ahlqvist	-	8,037
Professor Werner Nahm	-	461
Professor Luke Drury	-	7,031
Professor Pádraig Breatnach	-	1,597
Registrar		
Mr. Cecil Keaveney *	100,574	817
	<hr/> 100,574	<hr/> 20,980

*** Note**

The Registrar's pension entitlements does not exceed the standard entitlements in the model public sector defined benefit superannuation scheme.

14 Approval of Accounts

The Financial Statements were approved by Council on the 10th June 2011.



Ráitis Airgeadais don bhliain dár críoch 31 Nollaig 2010

Clár

Ráiteas Freagrachtaí na Comhairle	52
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Ráiteas Freagrachtaí na Comhairle

Éilítear ar Chomhairle Institiúid Ard-Léinn Bhaile Átha Cliath faoi alt 28(2) den Acht um Institiúid Ard-Leighinn, 1940 ráitis airgeadais a ullmhú ar shlí a cheadóidh an tAire Oideachais & Eolaíochta le comhthoilíú an Aire Airgeadais.

Agus an Chomhairle ag ullmhú na ráitis airgeadais sin éilítear uirthi:

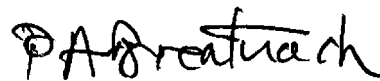
- polasaithe chuntasaíochta oiriúnacha a roghnú agus iad a chur i bhfeidhm go comhleanúnach;
- breithiúnais agus meastacháin a dhéanamh atá réasúnach agus stuama;
- na ráitis airgeadais a ullmhú ar bhonn gnóthais leantach mura bhfuil sé míchuí glacadh leis go leanfaidh an Institiúid ag oibriú; agus
- aon imeacht ábhartha ó chaighdeáin chuntasaíochta infheidhme a nochtadh agus a mhíniú.

Tá freagracht ar an gComhairle leabhair chuntais chearta a choinneáil a nochtáíonn ag aon am le cruinneas réasúnach staid airgeadais na hInstitiúide agus a chuireann ar a cumas a chinntiú go gcloíonn na ráitis airgeadais le hAlt 28(2) den Acht. Tá freagracht ar an gComhairle sócmhainní na hInstitiúide a shlánú agus as céimeanna réasúnacha a ghlacadh le cosc a chur ar chalaíoch agus ar neamhrialtachtaí eile agus iad a aimsiú.



Vincent Cunnane

Cathaoirleach-Comhairle na hInstitiúide



Pádraig Breatnach

Comhalta den Chomhairle

Ráiteas faoin gCóras Rialaithe Airgeadais Inmheánaigh

Freagracht as an gCóras Rialaithe Airgeadais Inmheánaigh

Thar ceann Chomhairle na hInstitiúide is mian liom ár bhfreagracht a chur in iúl lena chinntiú go ndéantar cothabháil agus go n-oibrítear córas rialaithe airgeadais inmheánaigh.

Ní féidir leis an gcóras ach dearbhú réasúnach agus ní dearbhú críochnaitheach a chur ar fáil go ndéantar slánú ar shócmhainní, go mbíonn idirbheartaíochtaí údaraithe agus taifeadta i gceart, agus go gcuirtear cosc ar earráidí ábhartha nó ar neamhrialtachtaí nó go n-aimseofaí iad i dtréimhse chaoithiúil.

Nósanna Imeachta Rialaithe Lárnacha

Tá céimeanna glactha ag an gComhairle lena chinntiú go mbeidh timpeallacht rialaithe chuí i bhfeidhm trí

- sainmhíniú soiléir a thabhairt maidir le freagrachtaí bainistíochta;
- nósanna imeachta foirmiúla a bhunú le teipeanna rialaithe suntasacha a thuiriscí agus lena chinntiú go dtógtar gníomh cuí leis an gceist a cheartú.

Tá próisis bunaithe ag an gComhairle le rioscaí gnó a aithint agus iad a luacháil trí

- nádúr, méid agus tionchar airgeadais na rioscaí a bhíonn os comhair na hInstitiúide a aithint lena n-áirítear méid agus catagóir a mheasann an Institiúid a bheith inghlactha;
- measúnú a dhéanamh ar an dóchúlacht atá ann go dtarlóidh na rioscaí aitheanta;
- measúnú a dhéanamh ar chumas na hInstitiúide na rioscaí a tharlaíonn a bhainistiú agus a mhaolú;
- measúnú a dhéanamh ar na costais a bhaineann le rialacháin áirithe a oibriú a bhaineann leis an sochar a bhaintear amach.

Tá an córas rialaithe airgeadais inmheánaigh bunaithe ar chreat oibre eolais bainistíochta rialta, nósanna imeachta riaracháin lena n-áirítear dualgais a roinnt, agus córas toiscaireachta agus cuntasachta.

Áirítear leis go háirithe:

- córas buiséid cuimsitheach le buiséad bliantúil a ndéanann Comhairle na hInstitiúide athbhreithniú air agus a bhíonn comhaontaithe aici;
- athbhreithnithe rialta ag an gComhairle ar thuiriscí airgeadais tréimhseacha agus bliantúla a léiríonn feidhmíocht airgeadais in aghaidh réamhaisnéisí;
- spriocanna a leagan síos le feidhmíocht airgeadais agus feidhmíocht eile a thomhas;
- cloí le treoirlínte chun soláthar don earnáil phoiblí.
- athbhreithnithe rialta ag an gComhairle ar thionscadail taighde seachtaracha.

I mí an Mheithimh 2010 tháinig an Coiste Iniúcháireachta le chéile chun athbhreithniú a dhéanamh ar chúrsaí rialaithe inmheánacha agus ar shaincheisteanna a d'ardaigh an tArd-Reachtaire Cuntas agus Ciste.

Ina theannta sin, an tuarascáil ar chórais rialaithe inmheánacha don bhliain 2010 a chuir an tIniúcháir Inmheánach ar fáil tugadh do bhaill na Comhairle í.

Tá monatóireacht agus athbhreithniú na Comhairle ar éifeachtúlacht an chórais rialaithe airgeadais inmheánaigh coinnithe ar an eolas trí obair an iniúcháir inmheánaigh, trí obair an Chláraitheora agus oifigigh eile laistigh den Institiúid atá freagrach as creat oibre rialaithe airgeadais cuí a fhorbairt agus a chothabháil, agus trí thuirimí a dhéanann an Coiste Iniúchta agus an tArd-Reachtaire Cuntas agus Ciste ina litir bhainistíochta no i dtuiriscí eile.

Athbhreithniú Bliantúil ar Rialacháin

Dearbhaím go ndearna an Bord athbhreithniú ar éifeachtachas chórais rialaithe airgeadais inmheánaigh na hInstitiúide sa bhliain dár críoch 31ú Nollaig 2010.

Sínithe thar ceann Chomhairle na hInstitiúide



Vincent Cunnane

Cathaoirleach-Comhairle na hInstitiúide

28 Meán Fómhair 2011

Tuarascáil an Ard-Reachtair Cuntas agus Ciste

le cur i láthair Thithe an Oireachtais

Institiúid Ard-Léinn Bhaile Átha Cliath

Tá ráitis airgeadais Institiúid Ard-Léinn Bhaile Átha Cliath don bhliain dar críoch 31 Nollaig 2010 iniúchta agam faoin Acht Um Institiúid Ard-Léinn, 1940.

Tá na ráitis airgeadais, a ullmháidh faoi na beartais chuntasaíochta arna leagan amach sna ráitis, comhdhéanta de na Beartais Chuntasaíochta, an Cuntas Ioncaim agus Caiteachais, an Ráiteas Gnóthachan agus Caillteanas Aitheanta Iomlán, an Clár Comhardaithe, an Ráiteas ar Shreabhadh Airgid, agus na nótaí gaolmhara. Tá an creat um thuairisciú airgeadais a cuireadh i bhfeidhm ina n-ullmhúchán de réir dlí agus Cleachtas Chuntasaíochta a nGlactar Leis go Coitianta in Éirinn.

Freagrachtaí na Comhairle

Tá an Chomhairle freagrach as na ráitis airgeadais a ullmhú, as léargas fíorcheart ar riocht ghnóthaí na hInstitiúide a chinntiú, as a hioncam agus a caiteachas a chinntiú, agus as rialtacht na n-idirbheart a chinntiú.

Freagrachtaí an Ard-Reachtair Cuntas agus Ciste

Is é m'fhreagrachta ná na ráitis airgeadais a iniúchadh agus tuairisc a thabhairt orthu de réir dlí is infheidhme.

Riar mé m'iniúchadh trí thagairt a dhéanamh to na nithe ar leith is gá a chur san áireamh i ndáil le cúrsaí bainisteoireachta agus oibriúcháin a ghabhann le Comhlachtaí Stáit.

Rinne mé m'iniúchadh de réir Caighdeán Idirnáisiúnta maidir le hIniúcháireacht (Ríocht Aontaithe agus Éire) agus de réir Caighdeán Eiticíúil an Bhoird um Chleachtais Iniúcháireachta d'Iniúcháirí.

Réimse Iniúchta na Ráiteas Airgeadais

Cuimsíonn iniúchadh fianaise a fháil faoi na suimeanna agus na nochtuithe sna ráitis airgeadais, ionas go mbeadh leordhóthain fianaise agam a d'fhágfadh cinnteacht réasúnach ann go bhfuil na ráitis airgeadais saor ó mhíríteas ábhartha, cibé acu calaois nó neamhrialtacht is cúis leis sin. Cuimsíonn sé seo measúnú

- an n-oireann na beartais chuntasaíochta don bhail atá ar chúrsaí na hInstitiúide, ar feidhmíodh na beartais sin ar bhealach leanúnach agus ar foilsíodh iad ar bhealach sásúil
- réasúntacht meastacháin suntasacha chuntasaíochta a rinneadh in ullmhúchán na ráiteas airgeadais, agus

- leagan amach foriomlán na ráiteas airgeadais.

Iarraim freisin fianaise a fháil faoi rialtacht na n-idirbheart airgeadais i gcúrsa iniúchta.

Mar aon leis sin, léim an fhaisnéis airgeadais agus neamhairgeadais sa Tuarascáil Bhliantúil chun neamhréireachtaí ábhartha a aithint leis na ráitis airgeadais iniúchta. Má thagaim ar an eolas faoi mhíríteas ábhartha dealraitheacha nó neamhréireachtaí cuirim na himpleachtaí san áireamh i mo thuarascáil.

Tuairim ar na Ráitis Airgeadais

Is é mo thuairim go dtugann na ráitis airgeadais, a ullmháidh i gceart de réir Cleachtais Chuntasaíochta a nGlactar Leis go Coitianta in Éirinn, léargas fíorcheart ar riocht ghnóthaí na hInstitiúide ag 31 Nollaig 2010 agus ar a hioncam agus ar a caiteachas don bhliain dar críoch sin.

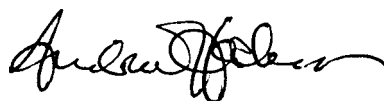
Is é mo thuairim go raibh leabhair chuntais chúil coinnithe ag an Institiúid. Tá na ráitis airgeadais ag teacht leis na leabhair chuntais.

Nithe ar a dTuairiscím Eisceachtaí

Tuairiscím eisceachtaí

- mura bhfuair mé an fhaisnéis agus na mínithe ar fad a theastaigh uaim do m'iniúchadh, nó
- má d'aimsigh m'iniúchadh aon chás ábhartha nár feidhmíodh suimeanna airgid chun na gcríoch a bhí beartaithe nó sa chás nár lean na hidirbhearta do na húdaráis a rialaíonn iad, nó
- mura bhfuil an fhaisnéis a tugadh i dTuarascáil Bhliantúil na hInstitiúide don bhliain lena-ullmháitear na ráitis airgeadais de réir na ráiteas airgeadais, nó
- mura gcomhlíonann Ráiteas na hInstitiúide maidir le Rialú Inmheánach Airgeadais Cód Cleachtais maidir le Rialachas Comhlachtaí Stáit, nó
- má fhaighim amach go bhfuil nithe ábhartha eile maidir leis an modh a riaradh gnó poiblí.

Níl a thuilleadh le tuairisciú agam maidir leis na nithe seo lena mbaineann tuairisceoireacht eisceachtaí.



Andrew Harkness

Le haghaidh agus thar ceann an Ard-Reachtair Cuntas agus Ciste
30 Meán Fómhair 2011

Polasaithe Chuntasaíochta

GINEARÁLTA

Bunaíodh an Institiúid faoin Acht um Institiúid Ard-Leighinn, 1940.

Áirítear ar a cuid feidhmeanna saoráidí a sholáthar le hardléinn a chur chun cinn tuilleadh agus le taighde a dhéanamh i mbrainsí speisialtachta eolais.

Tá trí Scoil inti - Scoil an Léinn Cheiltigh, Scoil na Fisice Teoiriciúla agus Scoil na Fisice Cosmaí.

POLASAITHE CHUNTASAÍOCHTA

1. Bunús Cuntasaíochta

Tá na ráitis airgeadais ullmhaithe ar bhonn fabhráithe faoin gcoinbhinsiún costais stairiúil agus de réir chleachtas cuntasaíochta a nglactar leo tríd is tríd. Glactar le Caighdeán Thuairiscithe Airgeadais a bhí molta ag na comhlachtaí cuntasaíochta aitheanta mar is infheidhme iad.

2. Deontais Oireachtais

Taispeántar ioncam ar bhunús airgid isteach.

3. Sócmhainní Seasta

Is éard is Sócmhainní Seasta ann ná troscán, trealamh, ríomhairí agus mótarfeithiclí na hInstitiúide agus taispeántar iad ag costas lúide dímheas carntha. Is mar seo a leanas atá na rátaí dímheasa, ríofa ar bhunús dronlíneach:-

Troscán agus Trealamh	10%
Ríomhairí	25%
Mótarfeithiclí	25%
Sár-ríomhaire	33.3%

Faightear áitribh atá i seilbh na hInstitiúide ar léas ó Oifig na nOibreacha Poiblí.

4. Cúlchiste Caipitil

Léiríonn cúlchiste caipitil luach neamh-amúchta ioncain a úsáidtear le Sócmhainní Seasta a cheannach.

5. Leabharlann

Díscríobhtar caiteachas ar leabhair leabharlainne agus ábhair sa bhliain a dtabhaítear é.

6. Foilseacháin

Díscríobhtar caiteachas ar fhoilseacháin sa bhliain a dtabhaítear é.

7. Aoisliúntas Pinsin

Feidhmíonn Institiúid Ard-Léinn Bhaile Átha Cliath scéim phinsin shochair shonraithe a mhaoinítear go bliantúil ar bhonn íoc mar a imíonn tú ó chistí atá ar fáil dó, lena n-áirítear cistí a chuireann an Roinn Oideachais agus Scileanna ar fáil agus ó ranníocaíochtaí a asbhaintear ó thuarastail foirne.

Léiríonn costais phinsin na sochair phinsin a thuilleann fostaithe sa tréimhse agus léirítear iad glan ar ranníocaíochtaí pinsin foirne a bhíonn coinnte ag Institiúid Ard-Léinn Bhaile Átha Cliath. Aithnítear suim a chomhfhreagraíonn don mhuirear pinsin mar ioncam sa mhéid go bhfuil sé inaisghabhála, go ndéantar é a fhritháireamh in aghaidh deontais a bhíonn faighte sa bhliain chun íocaíochtaí pinsin a ghlanadh.

Tá gnóthachain nó cailteanais achtúireacha ar dhliteanais na scéime léirithe sa Ráiteas ar Ghnóthachain agus Cailteanais Aitheanta agus aithnítear coigeartú comhfhreagrach sa mhéid is féidir a aisghabháil ón Roinn Oideachais agus Scileanna.

Léiríonn na dliteanais phinsin luach reatha na n-íocaíochtaí pinsin don todhchaí atá tuillte ag an bhfoireann go dtí seo. Léiríonn maoiniú pinsin iarchurtha an tsócmhainn chomhfhreagrach a bheidh aisghafa i dtréimhsí amach anseo ón Roinn Oideachais agus Scileanna.

8. Tionscadail

Faigheann Institiúid Ard-Léinn Bhaile Átha Cliath maoiniú seachtarach ó thionscal, ó chomhlachtaí rialtais, agus ó Choimisiún na hEorpa. Coinnítear cairt chuntais i gcás gach tionscadail.

Léirítear ioncam agus caiteachas ar thionscadail sna ráitis airgeadais sa bhliain lena mbaineann siad. Taispeántar barrachas nó easnamh tionscadail sna ráitis airgeadais nuair a léirítear sin.

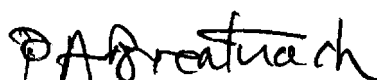
Cuntas Ioncaim agus Caiteachais

	Notaí	2010 €	2009 €
Ioncam			
Deontas Oireachtais		7,505,846	9,161,302
Glan-mhaoiniú iarchurtha do phinsin	11.c	2,164,149	1,955,026
Díolacháin Foilseachán		49,882	52,515
Tionscadail	2	3,103,885	4,096,104
Eile	3	63,438	103,071
Ranníocaíocht-Óstáil Bluegene		380,062	456,000
		13,267,262	15,824,018
Aistriú (chuig)/ó Cúlchiste Caipitil	5	913,223	(435,988)
		14,180,485	15,388,030
Caiteachas			
	1		
Scoil an Léinn Cheiltigh		1,566,278	1,687,431
Scoil na Fisice Teoiriciúla		1,199,335	1,297,841
Scoil na Fisice Cosmaí		4,993,356	6,014,710
Riarachán		6,721,678	6,213,239
		14,480,647	15,213,221
(Easnamh)/Barrachas don bhliain		(300,162)	174,809
Iarmhéid amhail an 1 Eanáir		1,217,171	1,042,362
Iarmhéid amhail an 31 Nollaig		917,009	1,217,171
Ráiteas ar Ghnóthachain agus Cailteanais Aitheanta			
		2010	2009
(Easnamh)/Barrachas don bhliain		(300,162)	174,809
(Gnóthachain) iarbhire ar dhliteanais na scéime pinsin		(1,998,000)	(328,000)
Athruithe i dtuairim is bonn do luach reatha dhliteanais na scéime pinsin		(18,000)	2,445,000
(Gnóthachan)/Cailteanas achtúireach ar Dhliteanais Phinsin	11.b	(2,016,000)	2,117,000
Coigeartú ar Mhaoiniú an Phinsin Iarchurtha		2,016,000	(2,117,000)
(Gnóthachan)/Cailteanas iomlán aitheanta don bhliain		(300,162)	174,809

Is cuid de na ráitis airgeadais sin é an Ráiteas Beartais Cuntasaíochta agus Nótaí 1 go dtí 14.



Vincent Cunnane
Cathaoirleach - Comhairle na hInstitiúide



Pádraig Breatnach
Comhalta den Chomhairle

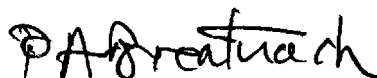
Clár Comhardaithe

	Notáí	2010 €	2009 €
Sócmhainní			
Sócmhainní Seasta	4	2,201,420	3,114,643
Sócmhainní Reatha:			
Airgead sa Lámh agus ag an mBanc		5,201,182	6,384,589
Féichiúnaithe agus Réamhíocaíochtaí	7	330,406	392,143
Féichiúnaithe Tionscadal	2	136,828	54,903
Sócmhainní Iomlána		7,869,836	9,946,278
Lúide Dlíteanais			
Creidiúnaithe - Méideanna atá dlite laistigh de bhliain amháin			
Creidiúnaithe agus Fabhrúithe		2,001,233	1,264,714
Creidiúnaithe Tionsadál	2	2,687,576	4,288,269
Creidiúnaithe - méideanna atá dlite tar éis bliana amháin			
	6	62,598	61,481
Dlíteanais Iomlána Roimh Phinsin		4,751,407	5,614,464
Sócmhainní lúide dlíteanais Roimh Phinsin		3,118,429	4,331,814
Maoiniú an Phinsin Iarchurtha	11.c	36,736,000	32,556,000
Dlíteanais Phinsin	11.b	(36,736,000)	(32,556,000)
Sócmhainní Glana		3,118,429	4,331,814
Maoinithe ag:			
Cuntas Ioncaim agus Caiteachais		917,009	1,217,171
Cúlchiste Caipitil	5	2,201,420	3,114,643
		3,118,429	4,331,814

Is cuid de na ráitis airgeadais seo é an Ráiteas Beartais Cuntasaíochta agus na Nótaí ó 1 go dtí 14.



Vincent Cunnane
Cathaoirleach - Comhairle na hInstitiúide



Pádraig Breatnach
Comhalta den Chomhairle

Ráiteas Sreabhadh Airgid

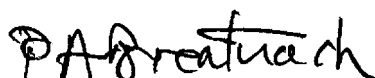
	Nótaí	2010 €	2009 €
Réiteach (easnaimh)/barrachais oibríochta chuig glan-insreabhadh airgid ó ghníomhaíochtaí oibríochta			
(Easnamh)/Barrachas don bhliain		(300,162)	174,809
Ús infhaighte	3	(41,662)	(89,415)
Ardú i gCreidiúnaithe		737,636	218,303
Laghdú i bhFéichiúnaithe		61,737	301,023
Glan-(laghdú)/ardú i gCláir Thaighde agus Táillí		(1,682,618)	1,600,221
Dímheas	4	1,057,271	1,084,465
Aistriú Cúlchiste Caipitil	5	(913,223)	435,988
Caillteanas ar dhiúscairt		174,815	25
Glan(eis-sreabhadh)/insreabhadh Airgid thirim ó ghníomhaíochtaí oibríochta		(906,206)	3,725,419
Ráiteas Sreabhadh Airgid			
Glan(eis-sreabhadh)/insreabhadh airgid thirim ó ghníomhaíochtaí oibríochta		(906,206)	3,725,419
Aischuir ar infheistíochtaí agus seirbhísiú airgeadais			
Ús Bainc Infhaighte	3	41,662	89,415
Caiteachas Caipitiúil			
Ceannach Sócmhainní Inláimhsithe	4	(318,863)	(1,520,478)
(Laghdú)/Ardú ar Airgead		(1,183,407)	2,294,356
Réiteach glaninsreabhadh airgead tirim chuig gluaiseacht i nglanchistí			
(Laghdú)/Ardú ar Airgead Tirim		(1,183,407)	2,294,356
Iarmhéid faoin 1 Eanáir		6,384,589	4,090,233
Iarmhéid faoin 31 Nollaig		5,201,182	6,384,589

Anailís ar athrú i nglanchistí	Airgead infhaighte sa Bhanc €	Ró tharraingt €	Iomlán €
I dtús na bliana 2010	6,384,589	-	6,384,589
Sreabhadh Airgid	(1,183,407)	-	(1,183,407)
Ag deireadh na bliana 2010	5,201,182	-	5,201,182

Is cuid de na ráitis airgeadais seo é an Ráiteas Beartais Cuntasáochta agus na Nótaí ó 1 go dtí 14.



Vincent Cunnane
Cathaoirleach - Comhairle na hInstitiúide



Pádraig Breatnach
Comhalta den Chomhairle

Nótaí do na Ráitis Airgeadais

1 Anailís Shonraithe d'Ioncam & Caiteachas don bhliain dár críoch 31/12/2010

IONCAM	Nótaí	Léann	Fisic	Fisic	Riarachán	2010	2009
		Cheilteach	Theoiriciúil	Chosmach		Iomlán	Iomlán
		€	€	€	€	€	€
Deontais Oireachtais		1,822,094	1,061,999	3,057,188	1,564,565	7,505,846	9,161,302
Glan-mhaoiniú iarchurtha do phinsin	11.c	(364,894)	(106,066)	(715,871)	3,350,980	2,164,149	1,955,026
Díolacháin Foilseachán		49,882	-	-	-	49,882	52,515
Ioncam Tionscadail	2.a	16,834	230,750	2,809,553	46,748	3,103,885	4,096,104
Ioncam Eile	3	-	-	12,356	51,082	63,438	103,071
Ranníocaíocht-Óstáil Bluegene		-	-	-	380,062	380,062	456,000
		1,523,916	1,186,683	5,163,226	5,393,437	13,267,262	15,824,018
Aistriú (chuig) ó Chúlchiste Caipitil					913,223	913,223	(435,988)
		1,523,916	1,186,683	5,163,226	6,306,660	14,180,485	15,388,030
CAITEACHAS							
Costais Phárolla	8	1,416,703	860,977	1,990,549	717,031	4,985,260	5,538,295
Costais phinsin	11.a	(44,128)	(38,817)	(72,952)	3,437,299	3,281,402	2,942,163
Costais Tionscnaimh Pinsin	11.a	(279)	(5,696)	(82,994)	-	(88,969)	(19,161)
Costais Tionscnamh	2.a	49,733	240,173	2,890,092	-	3,179,998	3,904,099
Costais Óstála Bluegene		-	-	-	310,680	310,680	298,835
Stóráil Leabharlainne agus Leabhar		40,293	101,816	63,371	14,910	220,390	220,262
Dímheas	4	-	-	-	1,057,271	1,057,271	1,084,465
Cíos, Rátaí agus Árachas		-	-	-	196,249	196,249	176,030
Costais Ghinearálta	9	14,439	14,624	59,690	217,625	306,378	260,575
Costais Taistil agus Seimineáir		24,505	12,572	77,565	7,892	122,534	147,941
Cothabháil Áitribh agus Slándáil		-	-	-	292,480	292,480	238,513
Costais ríomhairí agus Idirlín		3,009	6,493	57,582	75,282	142,366	94,273
Breosla Solas agus Cumhacht		-	-	-	136,283	136,283	158,280
Post agus Teileafón		-	-	-	35,961	35,961	37,948
Páipéarachas		13,113	1,449	3,273	39,065	56,900	40,121
Foilseacháin		48,075	-	661	-	48,736	53,495
Fógraíocht		560	-	-	5,452	6,012	3,834
Mion Trealamh Oifige		255	5,744	6,519	3,383	15,901	33,228
Cailteanas ar dhiúscairt	4	-	-	-	174,815	174,815	25
		1,566,278	1,199,335	4,993,356	6,721,678	14,480,647	15,213,221
BARRACHAS/(EASNAMH) DON BHLIAIN		(42,362)	(12,652)	169,870	(415,018)	(300,162)	174,809
Iarmhéid amhail an 1 Eanáir		312,710	111,872	962,846	(170,258)	1,217,171	1,042,362
Iarmhéid amhail an 31 Nollaig		270,348	99,220	1,132,716	(585,276)	917,009	1,217,171

Nótaí do na Ráitis Airgeadais (ar leanúint)

2.(a) Tionscadail

	2010 €	2009 €
Iarmhéideanna Tosaigh	4,233,366	2,686,109
Admhálacha	1,421,267	5,643,361
	5,654,633	8,329,470
Iarmhéideanna Deiridh (Féichiúnaithe €136,828 Creidiúnaithe €2,687,576)	(2,550,748)	(4,233,366)
Curtha i bhfeidhm mar ioncam	3,103,885	4,096,104
Leithroinnt Ioncaim		
Scoil an Léinn Cheiltigh	16,834	26,079
Scoil na Fisice Teoiriciúla	230,750	176,800
Scoil na Fisice Cosmaí	2,809,553	3,684,627
	3,057,137	3,887,506
Riarachán	46,748	208,598
Ioncam Iomlán Thionscadal	3,103,885	4,096,104

Costais Tionscadal

	Léann Cheilteach €	Fisic Theoiriciúil €	Fisic Chosmach €	2010 Iomlán €	2009 Iomlán €
Íocaíochtaí chuig Páirtithe/ Comhlachais	-	-	1,657,858	1,657,858	2,653,984
Tuarastail/Scoláireachtaí	8,328	215,020	896,872	1,120,220	956,723
Taisteal	539	22,592	204,194	227,325	231,880
Eile	40,866	2,561	131,168	174,595	61,512
Costas Iomlán Tionscadal	49,733	240,173	2,890,092	3,179,998	3,904,099

2.(b) Sonraí Tionscadail

	Iarmhéid Tosaigh €	Admhálacha €	Caiteachas Aisfillteach €	Curtha i bhfeidhm mar Ioncam (Caipéal san áireamh) €	Iarmhéid Deiridh €
Scoil an Léinn Cheiltigh					
Irish Script on Screen	18,087	8,000	8,725	8,725	17,362
IRCHSS G Manning Award	5,892	(5,892)	-	-	-
Celtic Summer School	2,016	7,350	60	60	9,306
Roisin Mclaughlin IRCHSS Fellow	-	16,677	8,328	8,049	8,628
Ogham	-	-	32,620	-	-
Iomlán-Leánn Ceilteach	25,995	26,135	49,733	16,834	35,296

Nótaí do na Ráitis Airgeadais (ar leanúint)

2.(b) Sonraí Tionscadail (ar leanúint)

	Iarmhéid Tosaigh €	Admhálacha €	Caiteachas Aisfillteach €	Curtha I bhfeidhm mar Ioncam (Caipéal san áireamh) €	Iarmhéid Deiridh €
Scoil na Fisice Teoiriciúla					
S Ni Chiagain -IRCSET	2,944	-	-	-	2,944
Seckin Kurkcuonglu	1,852	(1,852)	-	-	-
Subrata Bal -Fellow	9,974	(9,974)	-	-	-
Francis Dolan -IRCSET Fellow	9,874	(9,874)	-	-	-
Oliver Rosten -IRCSET Fellow	9,608	(9,608)	-	-	-
SFI Bethe Ansatz	25,784	-	-	-	25,784
Non-Commutative Geometry	131,461	-	120,223	115,904	15,557
Veselin Filev -IRCSET Fellow	31,262	(5,310)	26,857	24,756	1,196
V Dotsenko -IRCSET Fellow	31,637	5,440	38,909	37,077	-
T Tchakian SFI 07 Award	106,585	-	27,289	26,590	79,995
Babar Qureshi -IRCSET Fellow	(2,573)	12,037	-	-	9,464
Veselin Filev Inspire Award PD2010	-	75,051	26,895	26,423	48,628
Iomlán-FisiceTeoiriciúil	358,408	55,910	240,173	230,750	183,568
Scoil na Fisice Cosmaí					
Gamma Ray Bursts	23,984	-	5,391	5,391	18,593
Iomlán-Réalteolaíocht	23,984		5,391	5,391	18,593
Dos Max	11,849	(9,420)	(464)	(464)	2,893
PRTLl-CosmoGrid	908,476	(386,094)	69,960	13,326	509,056
Nam Conference	16,884	8,917	9,647	9,647	16,154
Jet 4 (Central Engines...Stars)	1,241	-	1,655	1,241	-
Jetset	20,630	6,913	17,513	20,241	7,302
Jonathon Mackay -IRCSET Postgrad	952	-	-	952	-
SFI Felix GNM	72,997	-	44,970	44,970	28,027
SFI Cores to Disks	126,505	-	100,007	97,794	28,711
Paul Dempsey - IRCSET Fellow	17,876	(17,876)	-	-	-
E-Inis -PRTLl Cycle 4	1,804,525	788,266	1,720,881	1,718,223	874,568
Linda Podio -IRCSET Fellow	12,649	(12,649)	-	-	-
Pic Simulations L Drury SFI 08	111,013	61,649	56,820	56,561	116,101
D Coffey -IRCSET Fellow	43,967	38,048	48,819	46,989	35,026
KM3Net -PP	7,977	8,000	7,156	7,156	8,821
E-Whelan Inspire	109,355	18,153	68,183	65,537	61,971
NGST/MIRI Project	(22,796)	62,553	130,598	129,931	(90,174)
Cosmic Ray Origin	(12,119)	26,835	2,338	2,338	12,378
Dobies	(2,962)	-	1,699	1,699	(4,661)
KVM3Net - Design Study	(845)	-	-	-	(845)
Valenti EC Reintegration Grant	-	128,371	37,241	37,835	90,536
Aleks Scholz SFI Brown Dwarfs	-	37,450	5,623	6,943	30,507
Alessio Caratti Reintegration Grant	-	22,500	-	-	22,500
Iomlán-Réaltfhisic	3,228,174	781,616	2,322,646	2,260,919	1,748,871

Nótaí do na Ráitis Airgeadais (ar leanúint)

2.(b) Sonraí Tionscadail (ar leanúint)

	Iarmhéid Tosaigh	Admhálacha	Caiteachas Aisfhillteach	Curtha I bhfeidhm mar Ioncam (Caipéal san áireamh)	Iarmhéid Deiridh
	€	€		€	€
Samtex	81,449	-	27,113	27,113	54,336
SFI Samtex	12,918	-	-	-	12,918
Geo External Funds	36,063	76,097	54,277	77,374	34,786
Marem SFI -X Garcia/NUIG	1,632	-	-	-	1,632
SFI Joint RFP	115,848	-	66,861	65,727	50,121
SFI Isle 2 P. Readman	97,741	-	32,719	32,719	65,022
Geophysics Schools Seismology	11,634	12,506	8,024	8,024	16,116
D Khosa -BHP Bill Support	26,266	-	21,348	21,348	4,918
Dynamics of Cont. SFI Lebedev	83,865	39,823	62,710	60,871	62,817
Indepth4 SFI A. Jones	119,530	35,237	86,133	90,003	64,764
TopoMed	8,828	93,041	93,265	91,446	10,423
Regional Seismic SFI 09 Lebedev	14,642	68,900	42,544	42,544	40,998
SFI Picasso	(6,649)	-	9,191	9,191	(15,840)
Irish Geoscience Graduate Programme	(206)	-	25,102	25,102	(25,308)
Pieter Share -CSIR Support	(6,756)	15,278	7,582	7,582	940
Orfeus Conference	-	19,724	19,724	19,724	-
CTBTO Grant	-	11,223	5,462	11,223	-
IRETHERM SFI	-	185,777	-	-	185,777
Iomlán-Geoifisic	596,805	557,606	562,055	589,991	564,420
Iomlán Físic Chosmach	3,848,963	1,339,222	2,890,092	2,856,301	2,331,884
Iomlán DIAS	4,233,366	1,421,267	3,179,998	3,103,885	2,550,748

3. Ioncam Eile

	2010	2009
	€	€
Ús bainc	41,662	89,415
Táilli & Deontais	5,835	3,201
Eile	15,941	10,455
Iomlán	63,438	103,071

Nótaí do na Ráitis Airgeadais (ar leanúint)

4. Sócmhainní Seasta

	Troscán & Trealamh	Mótarfheithicilí	Ríomhairí	Iomlán
	€	€	€	€
Costais				
Iarmhéid Tosaigh 1/1/2010	3,534,987	53,200	4,286,558	7,874,745
Breiseanna	167,157	-	151,706	318,863
Riartha *	(36,279)	-	(2,361,642)	(2,397,921)
	3,665,865	53,200	2,076,622	5,795,687
Dímheas				
Iarmhéid Tosaigh 1/1/2010	1,737,617	52,465	2,970,020	4,760,102
Muirear 2010	230,329	735	826,207	1,057,271
Riartha *	(25,033)	-	(2,198,073)	(2,223,106)
	1,942,913	53,200	1,598,154	3,594,267
Luach glan de réir na leabhar 31/12/2010	1,722,952	-	478,468	2,201,420
Luach glan de réir na leabhar 31/12/2009	1,797,370	735	1,316,538	3,114,643

* Nota

I 2007 rinne DIAS infheistíocht de €2,322,279 i sár-ríomhaire le haghaidh fhoireann taighde na hInstitiúide agus taighdeoirí eile ag obair in Éirinn. Toisc go dtarlaíonn dímheas luathaithe ar ríomhairí ardleibhéil i gcomparáid le trealamh cineálach ICT, tá an tsár-ríomhaire seanchaite anois agus is gá é a dhíscríobhadh sna cuntais ag deireadh 2010.

5. Cúlchiste Caipitil

	2010	2009
	€	€
Iarmhéid amhail an 1 Eanáir	3,114,643	2,678,655
Aistriú ó/(chuig) Cuntas Ioncaim agus Caiteachais		
Ioncam leithroinnte le sócmhainní seasta a fháil	318,863	1,520,478
Amúchadh ag teacht le dímheas sócmhainní	(1,057,271)	(1,084,465)
Méid scaoilte ar dhiúscairtí	(174,815)	(25)
	(913,223)	435,988
Iarmhéid amhail an 31 Nollaig	2,201,420	3,114,643

Nótaí do na Ráitis Airgeadais (ar leanúint)

6. Creidiúnaithe - Méideanna atá dlite laistigh de bhliain amháin

	2010	2009
	€	€
Creidiúnaithe Trádála	461,422	457,927
Fabhruithe	1,287,496	559,331
Ilnithe	3,119	514
CBL	15,992	20,672
Creidiúnaithe Ioncaim	165,479	169,270
Cuntas Rialúcháin Pinsean	67,725	-
Ioncam Iarchurtha	-	57,000
	2,001,233	1,264,714
Creidiúnaithe dlite tar éis dhá mhí dhéag	2010	2009
	€	€
Comhdhéanta as:		
Vernam Hull Bequest	60,137	59,021
Carmody Fund	2,461	2,460
	62,598	61,481

Tá an t-airgead a bhaineann leo seo sealbhaithe mar éarlais. Níor baineadh úsáid as aon mhéideanna le linn na bliana.

7. Féichiúnaithe

	2010	2009
	€	€
Réamhíocaíochtaí	243,931	208,375
Ranníocaíocht-Óstáil Bluegene	38,000	142,616
Féichiúnaithe-Díolacháin Leabhar	5,050	5,813
Ilnithe	23,088	20,378
Ioncam Fabhráithe	20,337	14,961
	330,406	392,143

8. Costais Phárolla

	Léann	Fisic	Fisic	Riar.	2010	2009
	Cheilteach	Theoiriciúil	Chosmach	€	Iomlán	Iomlán
	€	€	€	€	€	€
Tuarastal/Pá	1,302,441	798,356	1,865,500	717,031	4,683,328	5,114,877
Scoláireachtaí	108,125	53,481	114,144	-	275,750	249,204
Cuairteoirí	6,137	9,140	10,905	-	26,182	174,214
	1,416,703	860,977	1,990,549	717,031	4,985,260	5,538,295

Nótaí do na Ráitis Airgeadais (ar leanúint)

9. Costais Ghinearálta

	Léann Cheilteach €	Fisic Theoiriciúil €	Fisic Chosmach €	Riar. €	2010 Iomlán €	2009 Iomlán €
Ilghnéitheach	4,659	3,592	46,519	161,703	216,473	141,822
Tionscnaimh cur chun cinn/Lóin	6,718	523	3,009	1,965	12,215	20,761
Táillí Gairmiúla	-	-	-	24,362	24,362	40,118
Oiliúint	3,062	10,509	10,162	3,799	27,532	13,439
Táille Iniúchta	-	-	-	17,672	17,672	17,672
Muirir Bhainc	-	-	-	3,351	3,351	3,289
Drochfhiach Discrlobh	-	-	-	-	-	17,861
Sláinte & Sábháilteacht	-	-	-	4,773	4,773	5,613
	14,439	14,624	59,690	217,625	306,378	260,575

10. Léasáil

Léasanna Oibríochta

Tá na háitribh atá i seilbh na hInstitiúide ar léas ó Oifig na nOibreacha Poiblí.

Is iad na háitribh a n-airítear ná Réadlann Dhún Since, 5 Cearnóg Mhuirfean, 9-10 Bóthar Burlington agus 31 Plás Mhic Liam.

Tá téarma 86 bliana fágtha ar an léas do Réadlann Dhún Since agus athnuaitear na léasanna eile ar bhonn bliantúil.

Is é tiomantas ar bhonn léasanna den sórt sin maidir le 2011 na €113,609.

Léasanna Oifig na nOibreacha Poiblí	Cíos Bliantúil €
Réadlann Dhún Since	330
5, Cearnóg Mhuirfean	5,022
9-10 Bóthar Burlington	50,167
31, Plás Mhic Liam.	58,090
	113,609

Nótaí do na Ráitis Airgeadais (ar leanúint)

11. Costais Pinsean

	2010 (€'000)	2009 (€'000)
a) Anailís ar na costais iomlána pinsin curtha chun dochair do Chaiteachas		
Costas Seirbhíse Reatha	1,461	1,239
Ús ar Dhliteanas na Scéime Pinsin	2,002	1,902
Ranníocaíochtaí Fostaí *	(271)	(218)
	3,192	2,923

* Nota

Asbhaineadh ranníocaíochtaí pinsin de luach €89,000 den fhoireann thionscadal i rith 2010.

	2010 (€'000)	2009 (€'000)
b) Gluaiseacht i nGlan-Dlíteanas Pinsin i rith na bliana airgeadais		
Glan-Dlíteanas Pinsin amhail an 1 Eanáir	(32,556)	(32,718)
An Costas Seirbhíse Reatha	(1,461)	(1,239)
Costais Úis	(2,002)	(1,902)
(Gnóthachan)/caillteanas achtúireach	(2,016)	2,117
Pinsin íoctha sa bhliain	1,299	1,186
Glan-Dlíteanas Pinsin amhail an 31 Nollaig	(36,736)	(32,556)

c) Cistiú larchurtha do Phinsin

Aithníonn DIAS na méideanna seo mar shócmhainn a chomhfhreaíonn don dlíteanas iarchurtha neamh-mhaoinithe do phinsin bunaithe ar na toimhdí thuaslaithithe agus ar roinnt imeachtaí a tharla cheana. Áirítear ar na himeachtaí seo an bonn reachtúil chun scéim aoisliúntais a bhunú, agus an polasaí agus an cleachtas i ndáil le pinsin seirbhíse poiblí a mhaoiniú, lena n-áirítear ranníocaíochtaí ag fostóirí agus próiseas na meastachán bliantúil. Cé nach bhfuil aon socrú foirmiúil maidir leis na méideanna sonracha seo déanta leis an Roinn Oideachais agus Scileanna, níl aon fhianaise ag DIAS nach leanfaidh an polasaí maoinithe seo de bheith ag freastal ar a leithéid de shuímeanna de réir an chleachtais reatha.

Sa Chuntas Ioncam agus Caitheachais, aithníodh an Glan-Mhaoiniú larchurtha do Phinsin sa bhliain mar seo leanas:

	2010 (€'000)	2009 (€'000)
Maoiniú inaisghabhála i ndáil le costais phinsin na bliana reatha	3,463	3,141
Deontas Stáit feidhmithe chun pinsinéirí a íoc	(1,299)	(1,186)
	2,164	1,955

Ba í €36.7 milliún (2009: €32.6 milliún) an tsócmhainn mhaoinithe iarchurtha do phinsin amhail an 31 Nollaig 2010.

d) Stair na nOibleagáidí faoin scéim shochair shainithe.

	2010 (€'000)	2009 (€'000)	2008 (€'000)
Oibleagáidí shochair shainithe.	36,736	32,556	32,718
(Gnóthachan)/caillteanas iarbhire ar dhliteanas na scéime.	(1,998)	(328)	(1,258)
Céatadán de luach dhliteanas na scéime.	(5.40%)	(1.01%)	(3.84%)

Tá (gnóthachan)/caillteanas achtúireach carnach (€3,507,000) aitheanta sa Ráiteas d'Iomlán na nGnóthachan agus na gCailteanas Aitheanta.

Nótaí do na Ráitis Airgeadais (ar leanúint)

11. Costais Pinsean (ar leanúint)

e) Cur síos ginearálta ar an Scéim

Is é atá sa scéim pinsean ná socrú aoisliúntais shochair shonraithe chríoch-thuarastail le sochair agus ranníocaíochtaí faoi threoir rialachán reatha scéime 'eiseamláire' na hearnála poiblí.

Soláthraíonn an scéim pinsean (ochtóidí in aghaidh na bliana seirbhíse), aisce nó cnapshuim (trí hochtóidí in aghaidh na bliana seirbhíse) agus pinsin do chéilí agus leanaí. De ghnáth, is é an 65ú breithlá an aois scoir agus tá baill a thosaigh roimh 2004 i dteideal éirí as ag aois 60 gan aon laghdú achtúireach. De ghnáth, méadaíonn na pinsin atá á n-íoc (agus pinsin iarchurtha) de réir bhoilsciú ginearálta na hearnála poiblí.

Bunaíodh an luacháil a úsáideadh i gcás nochtadh faisnéise faoi FRS17 ar luacháil iomlán achtúireach a rinne achtúire neamhspleách cáilithe a chuir ceanglais FRS san áireamh chun dliteanais na scéime amhail an 31 Nollaig 2010 a mheasúnú.

Is mar a leanas a bhí na príomh-thoimhdí achtúireacha a úsáideadh:

	At 31/12/10	At 31/12/09	At 31/12/08
Ráta na nArduithe Tuarastail	3.50%	4.00%	4.00%
Ráta na nArduithe Pinsin atá á n-íoc	3.25%	4.00%	4.00%
Ráta Lascaine	5.25%	6.00%	5.70%
Ráta Boilscithe	2.00%	2.25%	2.25%

Leis an mbonn mortlaíochta atá á leanadh, is féidir dul chun cinn in ionchas saoil le himeacht ama a chur san áireamh; mar sin, braithfidh ionchas saoil ag dul ar scor ar an mbliain a shroichfidh ball aois scoir (65 bliana). Léiríonn an tábla thíos ionchas saoil na mball a shroichfidh aois 65 in 2010 agus in 2040.

	2010	2040
Aois 65 sa bhliain		
Ionchas saoil – fir	86.0	88.8
Ionchas saoil – mná	88.9	90.8

12. Nochtadh Idirbheartaíochtaí

Glacann Comhairle na hInstitiúide le nósanna imeachta de réir threoirínte atá eisithe ag an Roinn Airgeadais maidir le leasanna a nochtáíonn Comhaltaí na Comhairle agus chloígh Comhaltaí na Comhairle leis na nósanna imeachta sin le linn na bliana. Níor léirigh aon Chomhalta de chuid na Comhairle leas.

Nótaí do na Ráitis Airgeadais (ar leanúint)

13. Nochtadh Comhaltaí na Comhairle/Tuarastal an Chláraitheora, Táillí agus Costais

	Luach Saothair Iomláin €	Speansais Iomlána €
Comhalta den Chomhairle		
An tOllamh Dervilla Donnelly	-	-
Dr Vincent Cunnane le héifeacht ón 01/07/2010	-	486
Baill ceaptha ag Boird Rialaithe na gComhScoileanna		
An tOllamh Gerry Wrixon	-	2,082
An tOllamh Arthur Jaffe	-	468
An tOllamh Anders Ahlqvist	-	8,037
An tOllamh Werner Nahm	-	461
An tOllamh Luke Drury	-	7,031
An tOllamh Pádraig Breatnach	-	1,597
Cláraitheoir		
Cecil Uasal Keaveney *	100,574	817
	<hr/> 100,574	<hr/> 20,980

* Nóta

Ní sháraíonn teidlíochtaí pinsin an Chláraitheora gnáththeidlíochtaí scéim aoisliúntais le sochar sainithe na hearnala poiblí.

14 Ceadú Cuntais

Cheadaigh an Chomhairle na Ráitis Airgeadais ar an 10 Meitheamh 2011.



