

# **Senior Professorship in the School of Theoretical Physics, DIAS**

## **INTRODUCTION**

The Governing Board of the School of Theoretical Physics seeks an exceptional scientist for appointment by the President of Ireland to the position of Senior Professor in the School. The position will become vacant upon the retirement of Professor Werner Nahm. The Governing Board of the School has appointed an International Search Committee to recommend a suitable candidate for nomination. This document provides general information for prospective candidates about the Dublin Institute for Advanced Studies (DIAS) and more specifically about the School of Theoretical Physics and its activities as well as information on the general conditions attaching to the appointment.

## **DUBLIN INSTITUTE FOR ADVANCED STUDIES (DIAS)**

DIAS, the world's second Institute for Advanced Studies, was established following the Institute for Advanced Study in Princeton model. Currently there are three Schools: The School of Celtic Studies, the School of Cosmic Physics (encompassing astronomy, astrophysics and geophysics) and the School of Theoretical Physics. DIAS is funded by and reports to the Department of Education and Skills(DES).

As the world's second, and Ireland's only, Institute for Advanced Studies, DIAS is a globally embedded institution that attracts scholars and academics from around the world. It conducts and publishes advanced research across its areas of focus. DIAS also leads Ireland's participation in a number of international research endeavours that focus on big unanswered questions for mankind.

Our mission as an Institute for Advanced Studies is to push the boundaries of current understanding in our specialist disciplines and to conduct fundamental research to the highest international standards; to enable researchers at all career stages to flourish and fulfil their research potential, including to train talented scholars in advanced research; to provide a neutral dedicated research space and a conducive intellectual environment for local and international researchers to conduct advanced studies, explore ideas, and engage in unconstrained thought.

In late 2018, DIAS launched a new Strategy setting out four overarching strategic goals:

- Discovery of new knowledge and understanding through excellence and researcher-led endeavor
- International research collaboration benefitting Ireland and the world
- Attraction and cultivation of research leaders
- Strengthening disciplines and research communities nationally

[https://dair.dias.ie/1010/1/DIAS\\_Strategy\\_SS\\_2018-2022.pdf](https://dair.dias.ie/1010/1/DIAS_Strategy_SS_2018-2022.pdf)

The Council of DIAS, its body corporate, is responsible for the general governance of the Institute. Each School has an independent Governing Board responsible for the research programme and academic staffing and affairs of the School. The President, on the advice of

Government, appoints the Chairman and a number of external members. The Senior Professors of the School are ex-officio members of the Board. The Board appoints one of the senior professors as Director of the School for a term of three years.

In 2019, DIAS had a budget of €10m - €6.8m from the DES and €3.2m from competitive funding sources. DIAS currently employs 85 staff. In addition there are 22 scholars, a mix of pre-doctoral and postdoctoral level, and ~10 other hosted researchers.

The School is based at 10 Burlington Road and shares the site with Central Administration and the School of Celtic Studies. The offices are in close proximity to the School of Cosmic Physics offices which are based at 31 Fitzwilliam Place (Astronomy & Astrophysics), and 5 Merrion Square (Geophysics), Dublin 2. Dunsink Observatory is also part of DIAS. DIAS is currently seeking to co-locate all three Schools on a single site.

## **SCHOOL OF THEORETICAL PHYSICS**

The functions and duties of the School are laid down in the School Establishment Order: <http://www.irishstatutebook.ie/eli/1940/sro/309/made/en/print> (copied in Appendix 1) and those of the Institute more generally in the Institute For Advanced Studies Act, 1940 <http://www.irishstatutebook.ie/eli/1940/act/13/enacted/en/html> amended as <http://www.irishstatutebook.ie/eli/1947/sro/328/made/en/print>

The leading function is stated to be :

(a) the investigation of the mathematical principles of natural philosophy and the application of those principles to the physical and chemical group of sciences and to geophysics and cosmology;

The institute is not a degree awarding body and therefore functions primarily in the realm of training postdoctoral scholars ``in the methods of original research''. Supervision of postgraduate scholars is also carried out but in conjunction with a degree awarding body, not necessarily based in Ireland.

The School, and DIAS as a whole, enjoys excellent relations with the local universities and cooperation at all levels is actively encouraged. Such cooperation includes shared seminars, the joint supervision of graduate students and the provision of specialist lecture courses as well as collaborative research projects. Building such collaborative research networks is seen as an important part of the School's function.

## **CURRENT RESEARCH ACTIVITIES**

The school is highly regarded internationally for work on quantum field theory, string theory, statistical mechanics and quantum information. Groundbreaking research on the deep structure of quantum fields and related physical structures, and the development of new mathematical tools for their study, in addition to work on the theory of quantum information and the emergence of geometry out of a world of quantum fluctuations, are current areas of focus. The reconciliation of Einstein's theory of relativity (gravity) and quantum physics – a key global question – and the fundamental physics of phase transitions are also current areas of interest. The school has an extensive national and international network, and has an Adjunct Faculty programme. It provides facilities for university professors and lecturers on leave of absence from their academic duties and it organises seminars, conferences, and lectures.

## **FACILITIES AND STAFFING**

The school has IT support from a dedicated team which serves all of DIAS with one member assigned primarily to the school. This team maintains a small computer cluster on behalf of the school which is currently housed in Dunsink, while specialised parallel computing needs are provided by the ICHEC which is national high performance computing facility.

## **PARTICULARS OF THE APPOINTMENT**

This is a permanent post. Senior Professors are appointed by the President on the advice of the Government. A recommendation from the Governing Board for the appointment of a named person to be a Senior Professor is submitted to the Minister for Education and Skills who brings the matter to Government for consideration.

A Senior Professor must devote his/her time and ability to the furtherance of the work assigned to the School (see Appendix I) and he/she shall perform any duties assigned to him/her by the Governing Board of the School or the Director of the School as appropriate to his/her office. Except in so far as may be otherwise permitted by the Council of DIAS, with the consent of the Governing Board of the School, contributions to learning which result from study or research carried on by the Senior Professor shall be the property of the School. Professional work outside the School may only be undertaken with the prior consent of the Governing Board of the School.

## **SALARY**

The current remuneration attaching to the position is €163,157 (personal pension contribution scale); €155,000 (Standard scale).

## **REMOVAL EXPENSES**

The full cost of transferring ordinary household effects will be paid (further details are available on request).

## **MEDICAL EXAMINATION**

The nomination for appointment as Senior Professor will be subject to receipt of a satisfactory medical report.

## **PENSION**

### **Superannuation and Retirement Age**

Pension terms and retirement age conditions will depend on the status of the successful appointee.

First-time entrants to the Irish public sector:

<https://dias.ie/PensionInformationSTPSeniorProfessor2019>

Pre-existing Public Servants:

<https://dias.ie/PensionInformationSTPSeniorProfessor2019>

At the time of being offered an appointment, DIAS will, in the light of the appointee's previous Public Service (and/or other) employment history, determine the appropriate pension terms and conditions to apply for the duration of the appointment. Appointees will be required to disclose their full public service history. Details of the appropriate superannuation provisions will be provided upon determination of appointee's status.

#### **APPLICATION PROCEDURE**

Applications should be submitted through the DIAS online e-recruitment system: <https://dias.ie/VacancySeniorProfSTP2019> . Candidates are required to upload a letter of application, an academic CV, a research statement summarising their most significant publications together with a short statement outlining their vision for their tenure at DIAS . The names and contact details for at least three academic referees (who have agreed to act) should also be provided.

All applications received before close of business on July 1<sup>st</sup> 2020 will be acknowledged and considered by a Search Committee appointed by the Board of the School. The Search Committee may, at its absolute discretion, in addition consider applications or candidates other than those who apply directly. It is expected that interviews will be held in September 2020.

DIAS is an equal opportunities employer and is committed to gender balance, inclusion and diversity.

#### *Appendix 1*

Functions of the School of Theoretical Physics as laid out in the 1940 establishment order:

(2) The functions and duties of the School of Theoretical Physics shall be—

(a) the investigation of the mathematical principles of natural philosophy and the application of those principles to the physical and chemical group of sciences and to geophysics and cosmology;

(b) the training of advanced students in methods of original research in the said group of sciences and in geophysics and cosmology;

(c) the provision of facilities for advanced study and research in theoretical physics for university professors and lecturers on leave of absence from their academic duties;

(d) the organisation of seminars, conferences, and lectures on topics related to theoretical physics which lie on the frontiers of knowledge;

(e) the preparation and the recommendation to the Council for publication of descriptions of recent accessions to knowledge in the sphere of theoretical physics and in particular descriptions of such accessions resulting from the scientific activities of the School;

(f) the commissioning of competent scholars, whether associated or not associated with the Institute, to undertake, either with or without remuneration, the writing or the editing of works dealing with theoretical physics;

(g) such other functions and duties in relation to theoretical physics as may from time to time be decided on by the Governing Board of the School.