

The Institute of Physics

The forerunner of the Institute of Physics, the Physical Society of London, was created in 1874 at a time when the understanding of the physical world had been given an enormous impetus with the publication by James Clerk Maxwell of his theory of electromagnetism. The creation of the Physical Society was the response of the embryonic society of professional and amateur physicists in Britain to what they believed was a major progression of their ideas. Indeed, one could say that it was at this time that much of physics began to take on the appearance we recognize today.

The first Institute of Physics also came into being, as a separate organization from the Physical Society, at a time, 1918, when major advances were taking place in physics. The years which followed the founding of the original Institute of Physics witnessed one of the biggest revolutions in physics - the investigation of atomic structure and the development of quantum mechanics as a means of investigating and rationalizing the sub-atomic world. These two bodies of physicists existed independently, although many of the distinguished physicists who served as Presidents of the two bodies served as Presidents of both, until 1961 when the two organizations were fused to form the Institute of Physics and the Physical Society, which existed until 1970 when, by Royal Charter, the present Institute of Physics was created.

The evolution of the learned societies which represent the interests of a particular group of scientists inevitably follows the evolution of the subject. This is certainly seen in the evolution of the Institute of Physics which has since its inception ably supported the endeavours of the physicists of the UK. However, supporting physicists in their research and teaching is no longer enough to ensure the continued success of the physical sciences in the modern world.

Physics is a subject which, unfortunately, the majority of its non-practitioners believe has little or no relevance to their daily lives. We, however, are aware that this is certainly not the case. It is difficult to imagine our world without the advances that have been made in physics in the last century. Almost everything we

do involves physics - switching on a light, making a phone call or even baking a potato in a microwave oven. In industry, physicists are helping companies to develop novel materials that have physical properties more versatile than those previously developed, and they are designing new generations of microchips which are smaller and hence faster. The information revolution within which we are currently being buffeted would have been impossible without physicists and their research - transistors, liquid crystal displays, magnetic discs, optical fibres, semiconductor lasers, and that most obvious example of the new information technology, the World Wide Web, are all examples of the work of modern physicists which are irrevocably changing our world.



Apart from such tangible innovations, physicists also play a major role in weather forecasting and modelling, and hence in attempting to understand the various complex processes which occur in material and heat transfer in oceans, at ice caps and within the atmosphere. Indeed, the last few years have shown that it is even possible to be a physicist and earn spectacularly large salaries within the commercial sector of the national economy. There are now many trained in physics who have brought their expertise and ability to think in a multi-dimensional manner of functions strongly coupled to the financial markets - apparently those who trade in financial derivatives are often physicists.

However, for all of these important advances and application of physics to everyday life, there has never been a greater need for a learned society to represent the interests of all physicists. In recent years, the Institute of Physics has increasingly catered for the needs of professional

physicists in commerce and industry. The Council has established several Professional Groups in areas such as consultancy, engineering physics and advanced systems.

In these days of shrinking science budgets, the academic physics community has turned increasingly to its professional representative, the Institute of Physics, to lobby Government about the importance and relevance of physics. In common with other science subjects, calls to justify Government expenditure have increased in recent years. For several years the Institute of Physics has tirelessly argued the case for physics. There being an excellent case to argue, physics research in the United Kingdom is of the highest calibre and contributes substantially to the wealth of the nation via physics-based industries. Furthermore, many medical diagnostics now depend upon recent developments of what were once purely research tools in the physical science such as magnetic resonance imaging and ultrasound.

In addition to awarding the full professional qualification of Chartered Physicist (a right granted the Institute of Physics by the Privy Council since 1985), the Institute has, as a nominated body of the Engineering Council, a license to accredit engineering physics degrees and to admit physicists to the Register of Chartered Engineers (since 1996). The numbers of both Chartered Physicists and Chartered Engineers continues to grow. The Institute of Physics is rightly concerned that in this era of reduced job security and rapid technological advance, physicists need to continually update their professional training and maintain their marketability.

There is currently much disquiet amongst those involved in physics education about the declining numbers of pupils studying physics in high schools which manifests itself as a decline in the number of those studying physics at university. Many reasons have been advanced for this apparent lack of appeal of our subject. However, everyone is agreed that the high school syllabus has ossified and that teachers need more support to show that physics is alive and an exciting subject. Consequently, the Institute of Physics has developed a strategy to support physics in schools and colleges by developing a radi-

cally new and relevant curriculum that will both encourage young people to study physics beyond school and to make the subject more attractive. The Institute of Physics also plans to increase its efforts to provide support for teachers of physics through their Schools and College Affiliation Scheme.

The Institute, through its publishing subsidiary in Bristol, leads the world in the use of the most modern electronic means of information dissemination. Having access to the best quality and most up-to-date research information is essential for the continued success of the research endeavour; since its inception the Institute of Physics has striven to be a means of providing such information. The Institute publishes more than 30 research journals in all branches of physics, and distributes this information world-wide in a variety of media. For example, all the Institute's journals are accessible electronically from around the world.

Since the first journal more than 12 years ago, the Institute of Physics' publishing activities have flourished and now result in a significant financial profit. Not only is publishing physics at the centre of

the Institute's mission, but it also provides the resources needed to assist education and the public awareness of physics.

The 1990s have seen membership of the Institute of Physics increase by more than 50%, new headquarters have been acquired which offer unrivaled facilities for both the members and staff of the Institute. For many years, the Institute of Physics had its headquarters in Belgravia, London, but these premises became inadequate for the expanding activities and growing membership of the Institute. Close to Regent's Park, the new building possesses many additional features for members as well as a new conference centre with auditorium and a suite of seminar rooms.

These premises were formally opened by HM The Queen on 11 December, 1996, in the presence of the Institute's President, Dr. Brian Manley, Past Presidents, Council members and staff. This occasion marked the start of three days' events and celebrations. On the following day, the premises were open to members and others to give them an opportunity to view the facilities and the displays on the contributions of physics to wealth creation and the quality of everyday life, and

on the history of the Institute and its significant participation and initiatives in science education in the UK.

On the final day of these celebrations, an international assembly of physicists and scientists listened to presentations from well-known speakers who included:

Sir Michael Berry FRS – The colour of caustics

Laurence Eaves – Chaos and quantum mechanics in semiconductor devices

Robert Brown – Opto-electronics into the 21st century

Peter Kalmus – A personal view of Rutherford

Sir Arnold Wolfendale FRS – Physics and the search for extraterrestrial life

Chris Llewellyn-Smith FRS – Beyond the standard model of particle physics

David Clark – Surface-Interface science in the real world.

This series of events marks an important point in the continuing development of the Institute of Physics as a vigorous and active representative body for physics and physicists in the UK, and a dynamic participant in the world of international science.

Jeffrey H. Williams (European Physical Society)

University of Aarhus – Denmark

Associate professor in surface physics



Applications are invited for a permanent faculty position as associated professor in surface physics at the Danish Institute for Storage Ring Facilities – ISA. The position is open from June 1, 1997.

ISA is a national laboratory constituted as an independent institute of the Faculty of Science at the University of Aarhus and is located in the same buildings as the Institute of Physics and Astronomy. For information see: www.dfi.aau.dk/.

ISA staff runs the Aarhus storage ring ASTRID with the associated beamlines and performs research in connection with this facility. (For an overview see: www.dfi.aau.dk/isa.htm).

ASTRID is a dual purpose facility which runs part time as a synchrotron radiation (SR) source, part time as a storage ring for heavy ions. As a SR-source ASTRID operates at 580 MeV corresponding to 360 eV characteristic energy. For SR three beamlines are currently operational, two with very high resolution monochromators followed by ultrahigh vacuum systems for surface physics. These systems are implemented with facilities for analysis of surface structure, vibrational properties, chemical composition, gas adsorption and metal deposition. The third beamline is dedicated for imaging X-ray microscopy. Two more beamlines are being set up in connection with installation of an undulator.

Candidates having a strong research record in surface physics and SR are preferred. The successful candidate should be able to carry out original and independent research within the field of surface physics and to promote interaction with other research groups in the house. The Institute of Physics and Astronomy already hosts very active groups in surface physics applying in addition to methods based on synchrotron radiation, LEED and STM. The successful candidate will be expected to contribute to the teaching programmes at all levels.

The application should be sent in four copies and should contain a description of previous research and planned future research as well as information about teaching experience. A curriculum vitae and a complete list of publications should be included. Further, the applicant should submit 3 copies of the publications which the applicant considers the most relevant for the evaluation. Other supportive material should also be submitted in triplicate. The selection committee may include further material from the list of publications in its evaluation. In that case the applicant is expected, upon request, to supply this material to the committee.

The selection committee's written evaluation of the applicants will be sent in full to all applicants.

For further information contact: Professor Erik Uggerhøj, ISA, Ny Munkegade, DK-8000 Aarhus C. Tel.: 45 8942 3705; Fax: 45 8612 0740; E-mail: isa@dfi.aau.dk.

Applications should be addressed to: **The Faculty of Science, University of Aarhus, Ny Munkegade, Building 520, DK-8000 Aarhus C and marked 212/5-72. Deadline: May 2, 1997.**

UNIVERSITY OF AARHUS

DENMARK



Post-doctoral positions

Applications are invited for one-year post-doctoral positions, with the possibility of extension, at the Aarhus Center for Advanced Physics (ACAP), which is funded by the Danish National Research Foundation and hosted by the Institute of Physics and Astronomy, University of Aarhus, Denmark. The research program comprises atomic, molecular, and optical physics at the storage ring ASTRID, and investigations of point defects in semiconductors.

The research with low-energy ions at the storage ring includes studies of negative ions and cluster ions, laser spectroscopy on stored ions, ion-electron collision processes, molecular dissociation, and laser cooling of stored ion beams. Studies of biomolecules, e.g. proteins, will be initiated at a new electrostatic storage ring. The research in semiconductor physics includes studies of the microstructure of point defects in crystalline Si, Ge and SiGe. A variety of techniques for synthesis and analysis are available, such as MBE growth of SiGe, implantation, RBS, EPR, FTIR and DLTS. The research at ACAP is mainly experimental but we also invite applications within theoretical cluster physics.

Applications should include a curriculum vitae giving evidence on which the evaluation of the applicant's scientific qualifications can be based, a complete list of publications with an indication of those which the applicant selects as the most relevant for the application. The applicant must, upon request, submit further material required by the selection committee in its evaluation. All the material should be submitted in three copies.

Applications should be addressed to **Faculty of Science, University of Aarhus, Ny Munkegade, Building 520, DK-8000 Aarhus C, Denmark**, and marked 212/5-77.

The deadline for the receipt of all application material is **May 1, 1997**.

Supplementary information can be obtained from Professor Jens Ulrik Andersen, e-mail: jua@dfi.aau.dk.