

## Scandinavian Newsletter

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from BØRGE MICHELSEN

### Nordic cooperation in theoretical atomic physics

**COPENHAGEN**  
SOME time ago the Institute of Physics at Trondheim, Norway, decided to start work on the quantum field theory. The Institute wrote to NORDITA, Copenhagen, and asked whether it could possibly, under the NORDITA scheme, have I. Fujiwara of Osaka, Japan, as a visiting professor for a year or so. The application was granted. NORDITA invited Fujiwara to go to Trondheim, where he is still working. When he leaves Trondheim he will give some lectures in Stockholm and possibly other Nordic cities as well. And he will definitely participate in a colloquium or two in Copenhagen before returning to Japan.

The Fujiwara case is one example of the activities of NORDITA—short for Nordisk Institut for Teoretisk Atomfysik, or Nordic Institute for Theoretical Atomic Physics. It is backed and financed by the Governments of Denmark, Finland, Iceland, Norway and Sweden.

When NORDITA started work, in October, 1957, its permanent staff was almost identical to that which had headed the Theoretical Study Group of CERN which, as you may recall, functioned from Copenhagen till CERN turned from blueprints into buildings in Geneva. As you may also recall, the CERN Study Group gave promising young physicists a chance of making themselves acquainted with advanced scientific research.

This idea was adopted by NORDITA and still is one of the main items on its programme. Otherwise the two institutes cannot be compared. NORDITA is not going to have particle accelerators, like CERN. It is concentrating on theoretical physics and is, unlike CERN, entirely run by people who have been practising physics since they came of age.

There was a time when most nuclear physicists found it necessary to go to Copenhagen to pay a visit to the University Institute for Theoretical Physics (UITF). They do not have to any more, but many of them come nevertheless, and forty or fifty nuclear physicists from all

over the world can always be found on the premises. Between UITF and NORDITA, only a paper division exists. This means that any NORDITA research fellow may, at any time, in the corridors of the UITF buttonhole a world-renowned leader in the field of physics who is passing through Copenhagen. If he is too shy to do that he can always benefit from the wisdom of the great man at the weekly colloquium. Since Niels Bohr started and became head of the UITF it has been customary to have at least one colloquium a week and for visitors to participate in it.

But, naturally, the time of the young physicists is not spent in waiting for a Heisenberg or Cockcroft to turn up. To be accepted, and paid, as a research fellow under the NORDITA scheme one must have an acceptable research project. There are always fifteen young Nordic research fellows at the Institute. Research fellowships are granted for at least a year, and usually for two. The fellows work under the supervision and gentle guidance of the permanent scientific staff of NORDITA, which includes both Nordic and non-Nordic physicists. In the latter group you will find Ben R. Mottelson of USA, Leon Rosenfeld who used to work in Manchester, and Gerald E. Brown, well known from his days in Birmingham.

Whenever it is appropriate, one or more of the research fellows will be sent to congresses or institutes abroad. On special occasions all of them are sent. Recently NORDITA chartered an aircraft to take all the research fellows, plus other Nordic physicists, to spend a week at CERN.

Though promising youngsters are particularly catered for, any Nordic physicist may benefit from NORDITA. Not only are the Nordic institutes of physics kept informed of all NORDITA arrangements; they also regularly receive lists of the names of those currently visiting UITF, and if one or more of the institutes decides it would like to have a lecture from Professor X an attempt is made to send him on a Nordic lecture

tour. If it cannot be arranged, those particularly interested in his work are invited to come to Copenhagen.

Before NORDITA was formed, a physicist working in a remote Nordic place would hesitate to ask for a meeting in Copenhagen with a physicist he could not afford to visit in, say, California. Now he knows he has a right to be invited, since NORDITA is an organization of all Nordic physicists.

NORDITA has arranged series of lecture tours that would otherwise not have come about. Some of them have had, as a starting point, a casual visit to UITF. This holds true, for instance, of the Dirac lecture-tour on "The Born-Infeld electrodynamics in modern dress". In other cases a visiting physicist engaged to work at a particular Nordic institute for a period has been persuaded to undertake a series of lectures before he leaves: such was the case with Fujiwara. Again, at the request of the Mathematical Institute, Helsinki, NORDITA has invited Bleuler of Neuchâtel to go to Finland for several periods of four to six weeks. Each time he has given lectures in various Nordic cities on his way back from Helsinki to Neuchâtel.

In principle NORDITA is just another institute for training of physicists, exchange of information and interchange of views. It is, however, distinguished from most other institutes of a similar kind by its flexibility. If a project lies within the lines drawn by the board of NORDITA (and there is money available) nobody asks whether the application to get the project through had been submitted before a fixed date. Every effort is made to carry out any sensible scheme whenever it is presented.

Every year a number of NORDITA publications are issued; they total, up to now, about forty. They are, first and foremost, sent to the Nordic institutes of physics, but may be obtained by any institute of physics in the world. Several of them have been in large demand, such as the papers by Bohr and Mottelson on the nuclear structure and those written by the director of NORDITA, Professor C. Møller, on problems related to the general theory of relativity. Particularly appreciated by young physicists all over the world are the NORDITA lecture notes. For example, B. F. Bayman's on "Groups and their application to spectroscopy" has gone to three editions.

As it might be thought unfair to other institutes of a similar kind to reveal that the annual budget of NORDITA since its inception has been less than £45,000, I had better add that NORDITA is planning to ask for an increased grant which will, undoubtedly, be forthcoming from the Nordic governments.