

Letter to the Editor

End of the Free Ride

A physicist looking for something to commemorate in 1992 could safely take the discovery of the neutron, it being unlikely that any Indian or Viking preceded Chadwick. Alternatively, he might celebrate the 50th anniversary of the man-made fission reactor as a copious source of the new particle, and rejoice that after the 2nd World War such reactors became very popular with governments, who had many of them installed, often only to be left wondering what to use them for. Therefore the door was wide open for scientists who knew how to use neutrons. The benefits in understanding condensed matter have been enormous.

The July/August issue of *Europhysics News* could give the impression that this state of bliss is persisting even now: an advertisement testified to the upgraded reactor of the Hahn-Meitner-Institut surviving political turmoil, and there was news that funding would continue for neutron beam research at the Studsvik reactor. But of course there were earlier reports of the closure of the Harwell reactors and one hears of users being told that they will have to find new funds to pay for neutrons.

All this would not be alarming if the national general-purpose reactors being phased out, or becoming otherwise inaccessible, were to be replaced by multinational facilities dedicated to physics (and chemistry). But there the news is not very good. The ILL reactor needs a lengthy shut-down for repairs at a time when funds are become scarce. And a prospect for another free ride for neutron physicists, this one offered by a large spallation source needed to develop wall materials for fusion reactors, has faded. In fact, we were informed that the one spallation source, ISIS, is in the same financial squeeze as the Grenoble reactor.

Thus some action might be expected from the international neutron lobby. But alas, the physicists and chemists studying a multitude of problems by neutron scattering are a fragmented lot. It is only 12 years since they started to organize their own conferences (before that the IAEA did it for them), and one year since they got their own journal. Above all, they cannot present a single objective of their work, a Holy Grail, like the particle physicists, who always, as in 1932, have a model that would explain everything, were it not that just one or two particles are missing. The funds needed to find these each time surpassed Chadwick's requirements by at least one order of magnitude, but in fact they have always been provided, for good measure on both sides of the Atlantic. Since the neutron users are in no shape to match this performance, the EPS should perhaps consider the anniversaries of 1992 as the occasion to press for measures to guarantee the availability of neutrons, perhaps in concert with such bodies as the ESF and the European Commission.

J.A. Goedkoop
Emeritus Professor, Leiden

Berlin Lab Opens

After five years of construction work and a complicated licensing procedure, the research reactor BER-II at Berlin's Hahn-Meitner-Institut (HMI) will reach the full design power of 10 MW by the end of 1991, following the start of test operations earlier in the year. A new cold neutron source will then be put into operation. Neutron beams will be available for research on a regular schedule totalling 4000 hours in 1992.

According to Professor Ferenc Mezei, the reactor's main vocation is to provide neutron scattering research facilities to external users from both Germany and elsewhere. A new laboratory — the Berliner Neutronenstreu-Center/Berlin Neutron Scattering Centre (BENSC) of which Professor Mezei is the Director — was therefore created for this purpose a few weeks ago at HMI. It will operate in a similar fashion to the Laboratoire Léon Brillouin at CEN Saclay and to the ISIS spallation source at the Rutherford-Appleton Laboratory. A total of 14 instruments will gradually become available to external users during 1992, covering a broad spectrum of experimental possibilities. User groups can operate their own instruments, run their own experiments in space provided by BENSC, or pursue long term research projects using the instrumentation available at BENSC, or simply apply for beam time for single-shot experiments. The same facilities will also support a vigorous in-house research programme.



The Hahn-Meitner-Institut, Berlin.

Professor Mezei notes that together with other neutron scattering facilities, the BENSC faces a tremendous challenge over the next few years while the European high flux reactor at the ILL, Grenoble, is being refurbished. ILL represents roughly one-half of the total neutron scattering capacity in Europe and has cancelled all approved and forthcoming requests for beam time. In order to alleviate the disruption caused by its shutdown until maybe the beginning of 1993 (the exact timing has not yet been announced) the remaining neutron scattering centres have to make an extraordinary, coordinated effort to assure, in particular, the continuity of thesis students' work without serious prejudice. This conclusion emerged as a broad consensus at the last triennial International Conference on Neutron Scattering held in August at Oxford.

 **Ecole Polytechnique
Fédérale de Lausanne**

 **Eidgenössisches Amt für Messwesen
Office fédéral de métrologie
Ufficio federale di metrologia
Swiss Federal Office of Metrology**

The Swiss Federal Office of Metrology (OFM) is engaged in the precise realization of physical units. In the field of the

Quantum Hall Effect

an experimental research programme is carried out in collaboration with the Institute of Micro- and Optoelectronics of the EPFL to study the quantization of the Hall resistance in a two-dimensional electron gas. The required GaAs/AlGaAs samples are provided by the EPFL. At the OFM, a high field superconducting magnet together with an advanced dilution refrigerator is installed for studying and characterizing the samples. Applications are invited for a limited time research position, located at OFM. The position would be suitable for candidates seeking to start a doctoral research programme or for recently graduated scientists.

Candidates are asked to apply to:

Prof. M. Illegems
EPFL, Institut de Micro- et Optoélectronique
CH-1015 Lausanne
Switzerland

Tel. +41 (21) 693 34 42