

electrons can arise only through the quantum-mechanical exchange in the electron-electron collision. Hence this experiment promises a unique experimental test of the exchange interaction of electrons in a solid, employing directly the symmetry properties of the fermions.

The necessity for a vacuum in the experiments with polarized electrons as described here may be overcome in the future, especially with experiments of the second type involving the emission of polarized electrons from solids. To measure  $P$ , the sample surface could be covered with a semiconductor, and the circular polarization of the recombination radiation of the injected electrons with appropriate states could be observed, reversing the principle of operation of the spin polarized electron source. Spin dependent tunnelling into a magnetic semiconductor or superconductor, or spin selective electron scattering in point contacts containing magnetic impurities have also been proposed, or used as solid state detectors for electron spin polarization.  $P/n$  junctions are the basis of present electronics, and can be made with semiconductors only. However, a spin up/down junction is also conceivable with metals, which leads one rightly to suspect that this field is only at its very beginning.

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## International Facilities for Physics Research

Preceding the meeting of the EPS Council which will take place in Copenhagen on 24/25 March 1983, a Symposium on International Facilities for Physics Research will be held from 21-23 March, partly in Copenhagen and partly at the Risø National Laboratory which is celebrating its 25th anniversary at the same time.

The Symposium which is co-sponsored by the American Physical Society, Risø and the NOVO Foundation is a follow-up to the Symposium on the European Great Projects that took place in Rome on 26/27 March 1979 (see *Europhysics News*, **10** (1979) 4).

Principal topics covered by the Symposium will be:

- 1) Accelerators for nuclear physics and for high energy research;
- 2) Fusion research programmes;
- 3) Astrophysics in space and ground-based astronomical telescopes;
- 4) Neutron beam facilities;
- 5) Synchrotron radiation sources and facilities for condensed matter research.

Papers will be presented on both European and non-European programmes and the final session will be devoted to two panel discussions; one on new facilities for the physics community and the second on promoting international collaboration in physics.

## Hewlett-Packard Europhysics Prize

The formal citation awarding the 1983 Hewlett-Packard Europhysics Prize to Professor Isaac Silvera, as announced last month, states that it is in recognition of his work on Atomic and Solid Hydrogen.

Readers of *Europhysics News* will already be familiar with some of the outstanding achievements of Professor Silvera. In May 1980 we published an article contributed by him in collaboration with J.T.M. Walraven describing the experiments at the University of Amsterdam on the "Stabilization of Monoatomic Hydrogen — a New Bose Gas", whereby polarized atomic hydrogen was condensed on to a film of liquid helium at a temperature of 270 mK. Then, in August/September 1982, Prof. Silvera summarized the lectures he had been giving around Europe in his capacity as EPS Travelling lecturer on "New Phases of Molecular and Atomic Hydrogen under Extreme Conditions". This reviewed experiments on the behaviour of solid hydrogen at pressures going up to over 0.5 Mbar. Of particular interest was the detection of the broken (rotational) symmetry phase transition in  $D_2$  at 1 K, at a pressure of 278 kbar — a value much

higher than predicted. He also gave the most recent news of polarized atomic hydrogen gas being stabilized at a density of  $3 \times 10^{17}$  atom/cm<sup>3</sup>.

The 1983 prize will be presented on the second day of the General Conference of the EPS Condensed Matter Division to be held in Lausanne from 28-30 March 1983. Professor Silvera will be one of the speakers at the Conference.

Donated annually by the Hewlett-Packard Co., the prize is given for outstanding achievement in the field of solid state physics, in recognition of recent work (i.e. within the past five years).

**Proposals are now invited for the 1984 award.** These may be submitted by Members individually, or as representatives of a Division and should include:

a clear definition of the work in question; a short biography of the candidate; a list of relevant publications and reprints referring to the work recommended.

Details should be sent to the Selection Committee, c/o EPS Secretariat, POB 69, CH-1213 Petit-Lancy 2, to arrive not later than 12 August 1983. All information will be treated as confidential.

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