



PRESS NOTICE

31 AUGUST 1972ANGLO-EUROPEAN TALKS ON USE
OF HIGH FLUX REACTOR

The Government has authorised the Science Research Council (SRC) to enter into substantive negotiations with the French and German partners in the Institut Laue-Langevin (ILL) at Grenoble with a view to taking up a one-third share in their recently commissioned high flux reactor if suitable terms can be arranged.

Neutron studies are playing an increasingly important part in the study of solid and liquid states of matter and the use of these techniques is spreading rapidly in chemistry and biology as well as in physics and metallurgy. Present facilities in this country have been limited to the medium fluxes available from the reactors of the United Kingdom Atomic Energy Authority (UK AEA). The Council for Scientific Policy (CSP) has endorsed the SRC's view that access to high flux facilities is now essential to progress using this research technique.

The Government has been considering for some time the need to provide high flux neutron beam facilities for British scientists. Preliminary discussions between the SRC and the French and German authorities had shown that there were two possible alternatives: firstly to build a high flux beam reactor in this country; secondly for the SRC to become full members of the ILL consortium. The first alternative would have provided a reactor comparable to the Grenoble machine for the sole use of British scientists, and would also have provided irradiation facilities for the UK AEA in furtherance of their technological programmes. But it would have taken seven years to bring into commission and access to high flux facilities would have been severely limited in the meantime. If satisfactory terms can be agreed with the ILL authorities, British scientists will have immediate access to one-third of the facilities of the Grenoble reactor at a reduced overall cost. Successful conclusion of these negotiations will open the way to further European collaboration in scientific research.

Rutherford Laboratory Circular

NEUTRON BEAM RESEARCH

The Government's decision concerning the provision of high flux neutron beam facilities for use by British scientists has been announced in a press notice by the Department of Education and Science. The text of the DES statement is reproduced below.

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The Rutherford Laboratory will, through its Neutron Beam Research Unit, be closely involved in supporting the UK University scientists using the facilities at Grenoble.

31 August 1972

G Manning
Deputy Director

SCIENTIFIC RESEARCH USING BEAMS OF NEUTRONS

Background note

The way in which intense beams of neutrons are scattered when passing through solids or liquids, is a research technique of great and growing value. The neutron, having no electric charge and a mass of atomic magnitude, interacts easily with atoms making it possible to discover properties of the structure of the materials through which it passes including the structure of biological molecules. Its magnetic moment enables the structure of magnetic properties to be studied also. This can be done without damaging the specimen in contrast to x-rays.

SRC supports about 100 university scientists in the UK using this technique on the reactors of the Atomic Energy Authority, which provide neutron fluxes of medium intensity (up to 10^{14} neutrons per sq cm per second). Although the British scientists have pioneered much of this research and established a leading position in this field, there are many studies which can make further progress only if fluxes at least 10 times as great are available.

Such fluxes are available at 2 reactors in USA and a new high flux reactor has just come into operation at Grenoble, the Institut Max von Laue Paul Langevin, (named after two distinguished German and French physicists). This latter is a joint Franco-German venture.

Although the Grenoble reactor has only just come into operation, informal discussions about sharing its use with UK scientists have been going on for over a year. Information about research progress and reactor techniques has been freely exchanged, in order that the most fruitful research programmes can be planned in collaboration, and the most useful types of instruments constructed for use round the reactor in measurements of the scattering of neutrons.

The form of partnership between France, Germany, and Britain has still to be worked out in detail. The financial details have also to be settled. The UK would share the operating costs of about 60M French francs a year and re-imburse France and Germany some of the capital cost. The partnership will also make it possible for further neutron beam facilities to be considered on a European basis. Support for UK scientists using the Grenoble reactor will be provided by the Council's Rutherford Laboratory.

The Science Research Council had considered two ways of providing new resources for UK scientists:

- (1) The construction in the UK (at the Rutherford Laboratory of the SRC) of a reactor, which would provide necessary high flux beams and also irradiation facilities required by AEA.
T This would have cost, at present estimates, about £25M and would have taken 7 years to complete, during which time a small amount of use of the Grenoble reactor might have been possible.
- (2) To enter into full partnership with France and Germany in the use of the Grenoble reactor and the planning of its research programmes. This will provide less facilities for the UK but they will be available immediately.

The Council thought that the balance of advantage favoured the construction of a reactor in the UK but recognised that the partnership with France and Germany had great advantages, particularly in the short term, and that the Government's decision must involve issues beyond SRC's responsibility.