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The Central Role of ILL in the UK Neutron Landscape

Roger Eccleston



NMSUM2023



ISIS Neutron and
Muon Source



Mohamed Aouane wins SFN Thesis Prize

- MARI Instrument Scientist Mohamed Aouane has been awarded the SFN (the French Neutron Society) thesis prize. The prize is awarded to a doctorate student each year, who used neutron scattering extensively in their thesis
- Mo's thesis, titled: 'Endofullerenes: Dynamics in Confinement Probed by Neutron Spectroscopy' used INS (Inelastic Neutron Scattering) to probe endofullerenes, mainly focussing on the $^3\text{He}@C_{60}$, $^4\text{He}@C_{60}$ and $\text{CH}_4@C_{60}$ samples.



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D11

“an absence of a rigid hierarchy and youthfulness of most of the actors, which allowed an atmosphere to be created which was at the same time studious and relaxed”

“D11 was not conservative and its use has been scientifically revolutionary”

D11 and small angle neutron scattering: a paradigm of ILL

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Abstract This paper describes some of the early events in the 50 year success of D11. That, and the Institut Laue Langevin are linked by an attitude that embraces both instrument renewal and new areas of science. The neutron sources proved to be reliable and serviceable, the neutron guides and guide hall have been a great benefit, and the user concept has led to a strengthening international community of diverse and good science and to new instruments clamouring for funding in a growing facility. Designs were perfected and the second wind (Deuxième Souffle) funded the outflow from which a second strong phase has evolved.

1 Introduction

The Small Angle Scattering Instrument, D11, at the Institut Laue-Langevin (ILL), Grenoble, was a world leader at its inception in 1972, and has remained so. Constant technological renewal and scientific stimulus have ensured this. Publication rates, the diaspora of former D11 scientists and the D11 imitations elsewhere are characteristics of the whole Institut. This is my meaning of “a paradigm of the ILL”. The whole Institut is at the highest level—a non-political symbol of the present and future unity of two countries. That munificence then, has engendered a great flowering of science and international collaboration.

Professor H Maier-Leibnitz's imprint on the new Institut from 1967 endures. At the IAEA Symposium in Grenoble 6–10 March 1972 [1] he gave us a clue to the direction that neutron instrumentation was to take under his Direction: “... an effort was made to develop and construct instrumentation that would allow adequate use of this costly neutron source. A compromise has been made between the wishes of the innovators and of the neutron experts who are mostly conservative. It has been an interesting time...”

Bernard Jacrot, his associate Director at the time on page 64 of his book “Neutrons for Science” (p.64) [2], relates that Maier-Leibnitz's aim was “an absence of a rigid hierarchy and, youthfulness of most of the “Actors,” which allowed an atmosphere to be created which was at the same time studious and relaxed”. “Very intense work by “Nice and clever people” was compensated by celebrations which were more or less improvised”. “Skiing between 12.00 and 14.00 D11 was not conservative and its use has been scientifically revolutionary. At the onset, the 80 m length, the movable “state of the art” LETI detector and the data processing at the instrument with mini-computers, allowed in situ “experiments” rather than later, the big tube and moveable detector measurements. The big tube and moveable detector (DIDO) which can be traced to the FRJ-2 scientific and technical support for users [3]. The beginnings of D11 can be traced to the Maier-Leibnitz reactor at Julich) where many Munich reactor foreshadowed the D11 instrument. The diagram of that instrument is in Fig. 1.

On this instrument Schneider et al. [5] made SANS experiments finding the radii of gyration and oxy haemoglobin (as 24.3 ± 1.6 nm) on resolution. Apart from the effects of structure in metals and alloys, Figure 2 shows the structure of biological structure and all other et al. [6]. Its average structure and all other continue in M. In M.

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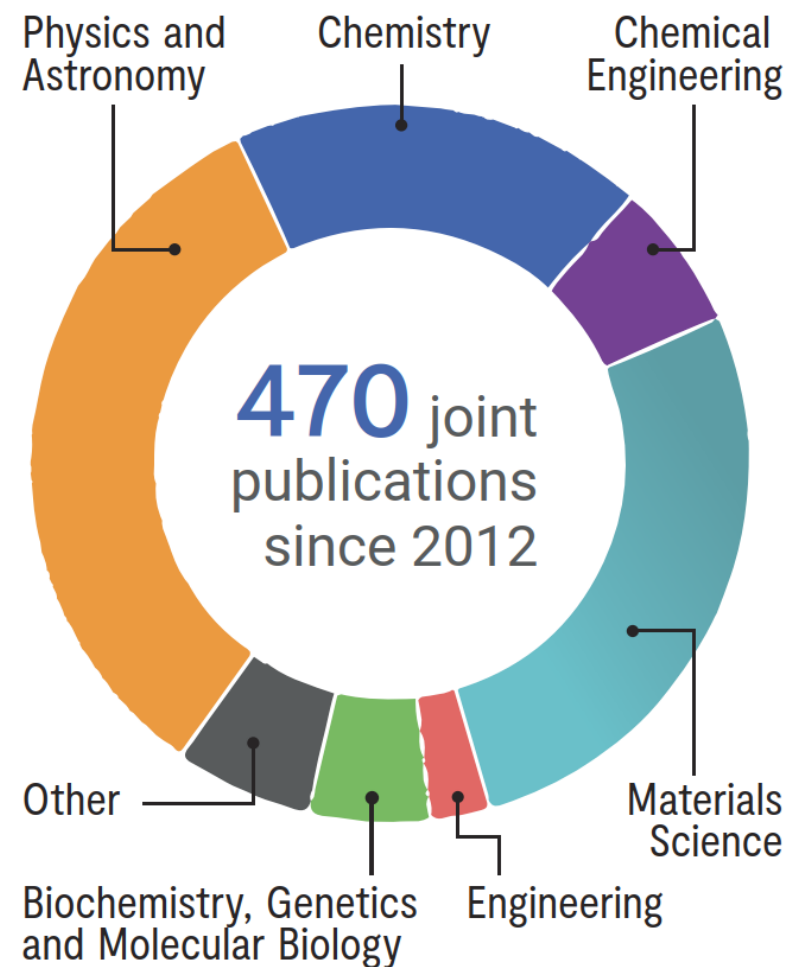
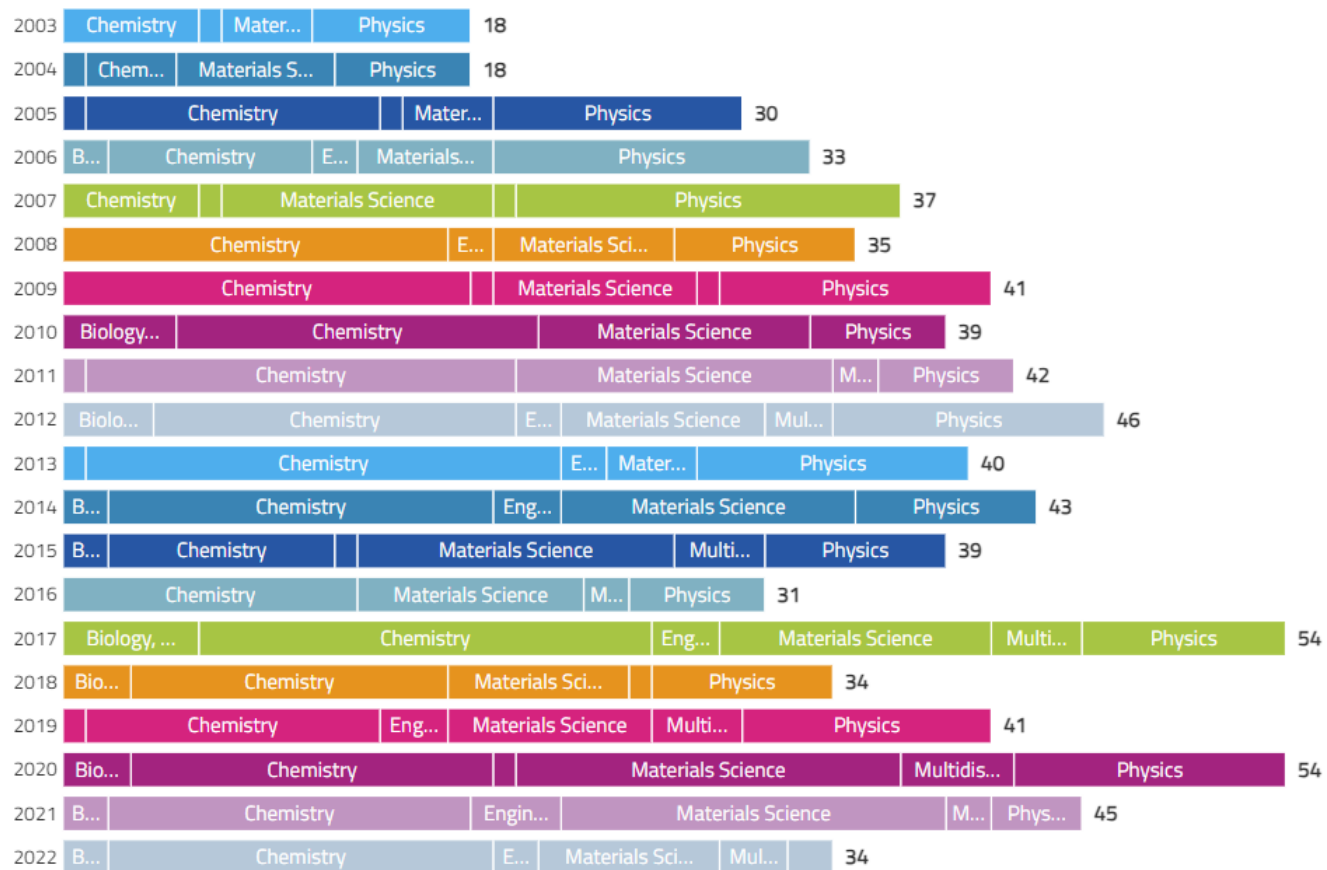
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