



## PRACTICAL INFO FOR ILL USERS



### Reactor operation schedule 2025

Rather than the originally planned two cycles before summer (46 days, 58.3 MW), a single cycle will now take place over 63 days, running from **Monday, May 5, to Sunday, July 6**. The reactor restart has been delayed due to project setbacks, the heavy workload on staff, and preparations for the forthcoming extended shutdown. Additional details about the second cycle of 2025 will be announced soon.



### Call for proposals

#### Next proposal submission deadline: 17 February 2025 (midnight CET)

Proposals must be submitted via the [ILL User Club](#) (please log in with your personal username and password). Easy Access requests for short measurements and DDT requests for full experiments to be performed as soon as possible can be submitted at any time. See [here](#) for detailed proposal submission information.

#### Important dates

Panel meetings: 8-9 April 2025

Scheduling period: from September 2025

Next deadline: 15 September 2025

## RECENT SCIENCE NEWS



### Neutrons for quantum technologies: breakthrough results on layered perovskites

Multiferroic materials, in which electric and magnetic properties are combined in promising ways, will be at the heart of new solutions for data storage, data transmission, and quantum computers.

Understanding the origin of such properties at fundamental level is key for developing applications.

Neutrons' magnetic dipole moment makes them sensitive to magnetic fields generated by unpaired electrons in materials. Neutron scattering techniques are thus a powerful tool to probe the magnetic behaviour of materials at atomic level. The story of so-called layered perovskites and the breakthrough results now published in 'Communication Materials' are a paradigmatic example highlighting the role of fundamental studies in the development of applications and the power of neutrons. The results pinpoint the spiral magnetic structure of these materials, finally establishing the common origin of its promising magnetic and electric properties up to room temperatures. The experiments were fully conducted at the ILL, using five different instruments and taking advantage of advanced sample environment technologies.

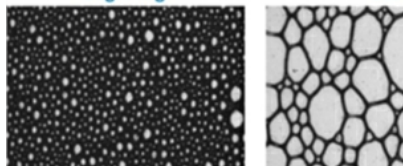
[Read more](#)



### Neutrons bridge predictions and reality of quantum spin ice

By linking theoretical predictions with neutron experiments, researchers found evidence for quantum spin ice in the material Ce<sub>2</sub>Sn<sub>2</sub>O<sub>7</sub>. Their findings could inspire the technology of tomorrow, such as quantum computers. The results have been published in the journal 'Nature Physics'. A series of experiments to characterise Ce<sub>2</sub>Sn<sub>2</sub>O<sub>7</sub> samples were performed at the ILL under the direction of Romain Sibille from the Paul Scherrer Institute on the instruments IN5 and IN16B. [Read more](#)

### Pea albumins solution during the foaming ex



### Pea-based cappuccino: the greener future of food

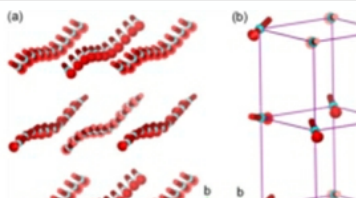
Foams are an essential component of many different drinks and foods: from a frothy head of beer to coffee crema, bread and ice cream. Despite their ubiquity, little is actually known or understood about these highly complex systems. Collaboration between the ILL and Aarhus University has connected unique capabilities to investigate foam with critically relevant food science challenges, bringing a greener food future a step closer. The ability to achieve a comprehensive and full-scale characterisation of foam was achieved at the ILL by the design of an innovative experimental set-up, together with the development of methods to analyse the acquired data. A sample of foam was generated and the structure was then investigated in situ and across length scales by simultaneously performing small-angle neutron scattering (SANS on D22 and D33), imaging and electrical conductivity measurements. [Read more](#)

Leaflet Lipid Partitioning Relative to their Total in the Membrane



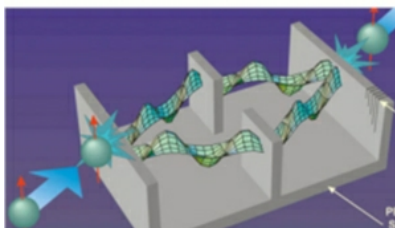
### Invisible molecules show the truth: cells don't break even

The lipid membranes surrounding human cells are known to be asymmetric in terms of their molecular composition. The localisation of cholesterol within these membranes has, however, been difficult to pinpoint until recently. Using neutron scattering (D22) and selective deuteration, researchers were able to tackle this challenge and to provide deep insights into the complexity of biological membranes. This knowledge can help design artificial membranes for drug delivery and facilitate the handling of demanding proteins. [Read more](#)



### Looking for satellites: a powerful capability of neutrons at the ILL

Future progress will be defined by the development of new and innovative next-generation materials. Despite the magnitude of the endeavour, breakthroughs will depend on understanding at the smallest scale: fundamentally, the properties of a material depend on its structure. A recent study published in International Union of Crystallography Journal (IUCrJ), highlights the unique insights that can be provided by world-leading neutron expertise, instruments (D9 and D19) and technology at the ILL. [Read more](#)



### 50 years of neutron interferometry

With 2024 now behind us, it is a good time to reflect on past accomplishments. In particular, 2024 marked the 50th anniversary of the start of neutron interferometry, offering an opportunity to look back on its origins—the development of this neutron technique is captured eloquently in an article by Wolfgang Treimer, professor at the Berlin University of Applied Sciences, published in September in Physik Journal, the official journal of the German Physical Society (in German). [Read more](#)



### The ILL in NuPECC's Long Range Plan 2024

The Long Range Plan 2024 (LRP2024) for European Nuclear Physics has been recently published by the Nuclear Physics European Collaboration Committee (NuPECC), an expert committee of the European Science Foundation representing the entire European nuclear physics community. This strategy document clearly recommends the exploitation of ILL well beyond 2033 – due to its scientific relevance, competitiveness in nuclear and particle physics, and its capabilities for producing radioisotopes for research and cancer treatment. [Read more](#)

## ILL Graduate School



### Elhoucine Hadden's successful thesis defence and launch of the PhD Seminar series

Elhoucine Hadden, PhD student at the ILL and the University of Vienna, successfully defended his PhD thesis on 28 January 2025. The thesis, entitled "Polymer based photonic materials for cold neutron optics" was developed on ILL's PF2 instrument, within the Nuclear and Particle Physics group, and supervised by Martin Fally and Jürgen Klepp at the University of Vienna and Tobias Jenke at the ILL. In his work, Elhoucine Hadden studied the diffraction of slow, so-called "very cold" neutrons (VCN) at holographic gratings with the aim to develop and optimise novel neutron-optical elements. As a result, the implementation of a modern, second-generation neutron interferometry setup using VCN becomes technically feasible and is planned as a milestone for the scientific programme on PF2 in 2025. The first generation instrument was implemented by A. Zeilinger and his group on PF2 in the 1990s. [Read more](#)

## Events



### #Neutrons4Europe in Action: highlights from the ILL-ESS User Meeting 2024

The ILL-ESS User Meeting last December 2024 brought together experts, researchers, and users from across the globe to celebrate collaboration and scientific progress. Key Facts: 207 participants attended, reflecting strong engagement and enthusiasm from the community. Representation from 23 countries brought many valuable contributions and provided an excellent opportunity for colleagues from ILL and ESS to meet and exchange information.

On this occasion, the ILL invited the general public to attend a conference in French at Minatoc, entitled "La science des neutrons au service de notre avenir" (Neutron science supporting our future). [Read more](#)



### The ILL officially enters a new era

The completion of the ILL Endurance upgrade programme was officially celebrated on 27 November, in the presence of representatives of the ILL Associate Countries – France, Germany and the United Kingdom – and of several ILL Scientific Member Countries, European neutron facilities and key partner institutions. The completion of the Endurance Programme marks the conclusion of more than two decades of continuous investment. Within the last seven years, Endurance has delivered 30 new and upgraded instruments and infrastructures, with a total investment of around 50 M€. [Read more](#)



### Flipper 2024: a successful workshop on polarised neutron diffraction

Last December the ILL hosted Flipper 2024, a workshop over two and a half days dedicated to single-crystal diffraction with polarised neutrons. This workshop followed the tradition of similar events held since 2010. Over 90 participants joined the workshop, ranging from researchers new to the field to long-time researchers like Francis Tasset's former colleagues and friends. The workshop provided an introduction to polarised neutrons, explored the history of ILL techniques, and offered a virtual tour of ILL instruments. The sessions covered most of the current hot topics in quantum materials – an area crucial for society – ranging from fundamental to more applied aspects.

## EU projects



### European collaborations

The ILL is currently involved in 17 EU-funded projects, which will increase to 18 as of 1 of March 2025. These include three current Marie Skłodowska-Curie Actions (MSCA) EU-funded initiatives that demonstrate ILL's commitment to advancing neutron research and training the next generation of scientists through collaborative, interdisciplinary projects: [Amber](#) - [Nextstep](#) - [Climb](#)



#### Remade@ARI

The **last call for Small and Medium-sized enterprises (SMEs) proposals of the ReMade@ARI project** is open [Plastics / Packaging / Vehicles - Batteries / Electronics / Construction / Textiles / Food - Water - Nutrients]. A great opportunity for SMEs conducting circular economy research to benefit from: - free access to more than 50 European analytical research infrastructures with full support (experiment preparation support, instrument time and complete data analysis). - fast proposal processing: thanks to our continuous submission process, SMEs can submit a proposal any time. - confidential results: no publishing requirements. Simply contact [industry@remade-project.eu](mailto:industry@remade-project.eu) and get started.

#### MORE HIGHLIGHTS & NEWS HERE !



4 February - 15:00 Chadwick amphitheatre | [ILL Graduate School PhD seminars](#)  
5 February - 10:00 College 3 seminar | [Milan Krtrička](#)  
5 - 6 February | [Tech & Fest](#)  
17-21 February | Collection in aid of the Isère Food Bank (ILL 4 entrance hall, Science Building entrance hall and ILL19/ILL20 liaison building)  
20 February - College 9 | [1-day data analysis course + tutorial using the D+ software](#)  
10 March - 14:00 College 3 seminar | [Will Flanagan](#)

The User-Office is available from Monday - Friday 8am - 4.30pm on the first floor of the new ILL50 building.  
You can also use the telephone available near to the ILL50 reception to call your Local Contact, or the User Office in case of problems

#### Previous issues of the ILL newsletter



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