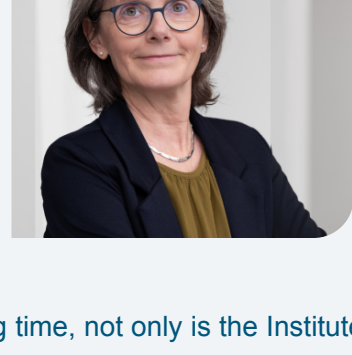


ILLnewsletter

ILL in focus

New ILL top management team has been appointed

Regine Willumeit-Römer will take over as the next Director of the ILL, while Ken Andersen and Jacques Jestin will continue at the ILL as Associate Directors for the Science Division and the Projects and Techniques Division (DPT), respectively. The new team will take up its duties on 1st October 2026. Regine currently leads the Institute for Metallic Biomaterials at the Helmholtz-Zentrum Hereon and is professor at the University of Kiel (Germany). For two decades, she has been engaged in biomaterials research, with a strong focus on the development of degradable metallic implants and bridging fundamental research with innovative applications that benefit both academia and industry.



The new management team will be taking over the reins of the ILL at a particularly exciting time, not only is the Institute at its highest level of performance ever, but its crucial role in the European neutron landscape and as a pillar of European leadership and sovereignty in science and innovation is increasingly recognised. [Learn more](#)

Spotlight on our Scientific Users

What do [barocaloric plastic crystals](#), [superconductors](#), [plant-based foams](#), [Viking runes](#), [low-carbon cement](#) and [elephant ivory](#) have in common? They were all studied using neutrons at the ILL during the last user cycle. Together, these portraits offer a snapshot of the breadth of questions neutron science can help address, from health, energy and quantum materials to the environment and cultural heritage

Meet the scientists that use neutrons to...



User cycle #199

Now, as the **200th User Cycle** is underway, the ILL is marking a milestone worth celebrating. More than just a number, this 200th cycle reflects decades of experiments, collaborations and scientific curiosity brought to Grenoble by our international user community. As it unfolds, we look forward to seeing the new ideas, questions and discoveries this and the upcoming cycles will bring.

User Programme Calendar

15 September | Standard Proposals Deadline
DDT and **EASY** proposals: open year-round

3 - 4 November | Subcommittees Meeting (ILL)
5 - 6 November | Scientific Council Meeting (ILL)

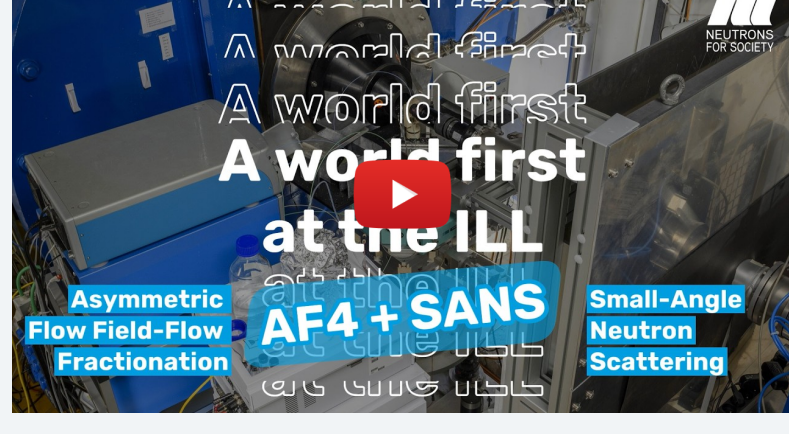
[Check 2026 Reactor Cycle Dates](#)

Recent science news

How can neutron scattering help develop ever more effective and safe drug delivery systems?

Health

A world first at the ILL: the successful coupling of asymmetrical flow field-flow fractionation (AF4) with small-angle neutron scattering (SANS)



Modern medicine increasingly relies on targeted drug delivery - a process during which tiny particles (nanoparticles) transport drugs to specific parts of the body. To ensure these treatments are safe and effective, scientists need to understand exactly how these nanoparticles are built - including their size, shape, and internal structure.

In this study, an international team combined several advanced analysis techniques to investigate drug delivery nanoparticles in unprecedented detail.

For the first time, they successfully coupled a particle separation method known as **AF4 with small-angle neutron scattering (SANS)** during an experiment performed on the ILL's **D11 instrument**.

This new approach allowed the researchers not only to measure the nanoparticles' size and shape, but also to determine how these particles and drug molecules were organised internally. The work opens new possibilities for using **neutron scattering** to study increasingly sophisticated drug delivery systems and can help support the development of safer and more effective treatments in the future. [Read more](#)

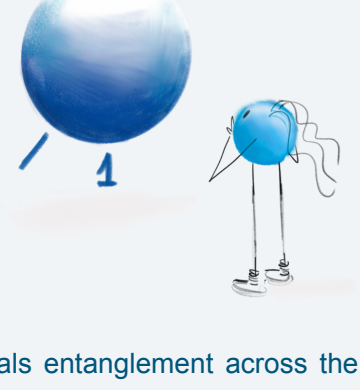
Quantum entanglement detected inside a centimetre-sized strange metal

Quantum materials

So-called strange metals display highly intriguing quantum properties, many of which yet to be understood. First identified in high-temperature superconductors, they have been observed in several classes of materials with exotic quantum behaviours which, if mastered, would have huge potential for applications. Intensive research efforts are ongoing.

A team of researchers from the Technical University of Vienna studied a strange metal using neutrons at the ILL. They then used inelastic neutron scattering on **ThALES** at the ILL to probe the crystal at extremely low temperatures (down to 60 millikelvin) under a carefully tuned magnetic field.

Their results suggest that the crystal's constituents respond collectively in a way that reveals entanglement across the centimetre-sized sample. This is the largest entanglement depth reported so far in any quantum material. To capture this collective quantum response, researchers used a quantity from quantum information theory called quantum Fisher information. This establishes an important new bridge between solid state physics and quantum information technologies. [Read more](#)



Successful delivery: how drug molecules behave within tiny carriers

Health

Biologics - therapeutics based on naturally occurring molecules - are a beacon of hope in the fight against various, often difficult-to-treat, diseases. Their fragility requires dedicated carrier systems in order to deliver them to their targets within the human body. **Hydrogels** are a promising solution for delivering biologics.

Using quasi-elastic neutron scattering on **IN16B** and **IN15**, scientists from **AstraZeneca**, **The University of Manchester**, **University of Strathclyde** and the **ILL** tested such a delivery system for molecules of different sizes. Their experiments provided a molecular-level understanding of the processes governing controlled and sustained drug release, helping to pave the way for the development of next-generation therapeutics. [Read more](#)



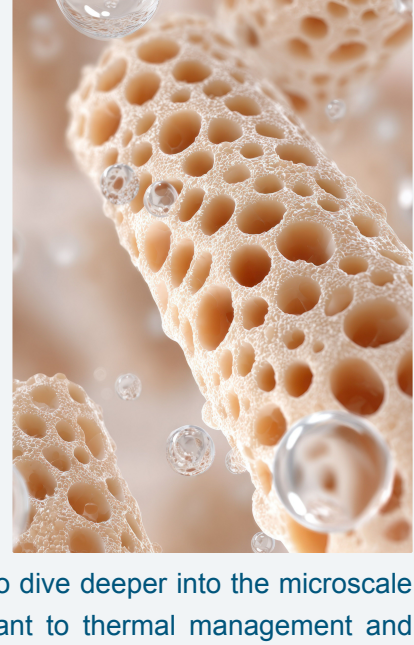
Peeking into pores: A powerful synergy of in-situ neutron imaging and numerical models gives rise to a novel model describing water vapour condensation in porous materials

Environment

Water molecules are tiny and able to move very quickly through materials, even those that, at first glance, may appear impenetrable. This includes many porous materials. Understanding how water condenses within porous rocks is essential to grasp the impact of condensation on material functionality for future underground storage solutions.

In a recent study combining a novel, highly comprehensive model of water condensation with experimental data obtained on ILL's neutron tomograph **NeXT**, scientists were able to obtain a highly precise description of this phenomenon. **Neutron imaging** data were used to validate the numerical model by comparing simulations with experimentally observed water distributions. The model was then shown to reproduce condensation behaviour not only in relatively homogeneous samples, but also in more realistic complex porous materials, including heterogeneous structures and samples containing small fractures.

Future works will exploit the new microtomography capabilities of the **PorTo** instrument to dive deeper into the microscale nature of the problem, expanding the study to various domains, such as those relevant to thermal management and energy production. [Read more](#)



European news

ASCENT at ILL selected for funding under "Choose Europe for Science"



The main drivers of the project at the ILL (from left to right): Mark Johnson (Head of Partnerships and Communication), Serena Mancini and Anne-Mathilde Thierry (ILL's Grants Office) and Jacques Jestin (ILL Science Director).

The ILL will lead the ASCENT project, funded at 1.4M€ by the European Commission as part of the initiative "Choose Europe for Science 2025". The goal is to train the next generation of researchers and sustain Europe's leadership in neutron science.

ASCENT is one of 16 projects (three of them in France) funded under the pilot call of a programme that aims to enhance the attractiveness of research careers in Europe and address the challenge of European talent retention. It is also the only project led by a large-scale infrastructure. [Learn more](#)

Events

Early bird registration open for the fifth ESS ILL Joint User Meeting

ESS ILL USER MEETING 2026

18-20 NOVEMBER
LUND, SWEDEN



Early bird registration is now open for the 5th ESS ILL Joint User Meeting in Lund, Sweden, on 18 – 20 November 2026.

Submit your abstract within one of this year's scientific topics:

- batteries and energy materials,
- quantum materials,
- liquid-liquid phase separation,
- advanced manufacturing.

[Register now](#)

Success for the 17th Bombannes European Summer School

From 9 to 16 June 2026, the 17th edition of the Bombannes European Summer School took place in Carcans-Maubuisson, France. Jointly organised by L2C (University of Montpellier) and the ILL every two years since 1990, the school continues its long-standing tradition of providing advanced training for the next generation of researchers.

This year, 43 post-graduate and post-doctoral participants from various European laboratories gathered to learn about the latest state-of-the-art scattering methods using neutrons, as well as X-ray and light sources.



Over the course of the week, they had the unique opportunity to study the fundamentals and applications of these techniques in soft condensed matter and to learn from 15 renowned scientists in the field. By introducing young researchers to current methodologies on a fundamental level, the ILL and L2C are helping to equip European laboratories with the expertise needed for future breakthroughs in materials science. A huge thank you to the organisers, speakers, and participants who made this 17th edition a resounding success!

Calendar

31 August - 14:00 (UTC) | College 3 Seminar: **BaCo₂(AsO₄)₂: Strong Kitaev, After All** presented by Sasha Chernyshev (University of California) [Join online](#)

12 - 16 October | **10th International Topical Meeting on Neutron Radiography (ITMNR-10)** [Registration open](#)

18 - 20 November | **ESS ILL User Meeting** [Early-bird registration open](#) until **31 Aug**. Registration closes on **31 Oct**.

Connect with the Global Neutron Community on LinkedIn!

Join the Neutronsources LinkedIn page and keep up-to-date:

- News from neutron facilities and research around the world
- Info on job openings, event announcements and more (including a digest from the neutron mailing list <https://lists.neutronsources.org/mailman/listinfo/neutron>)



NEUTRONS
FOR SOCIETY

Previous issues of the [ILLnewsletter](#)

www.ill.eu
communication@ill.eu
To unsubscribe follow instructions [here](#)