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3rd ESS-ILL User Meeting, save the date : from 5 to 7 October 2022, Lund. More information at www.neutrons4europe.com

GENERAL NEWS



Update on the ILL20-23 Programme and the 2021-2022 long shutdown work

As we enter the 6th month of the 14-month H1-H2 shutdown, the ILL20-23 work programme remains on time and on budget. The future H1-H2 beam tube - which will deliver neutrons to the whole of the vast ILL7 experiment hall - is now waiting in the reactor hall ready for installation. The old tube is now being carefully cut up into multiple sections, ready for processing as nuclear waste. On the instrument projects side, the new floor for the H24 instruments is progressing well; it will receive the future high-performance H24 guide and five instruments (D10+, XtremeD, IN13+, CT2 & Cyclops). Thirty-five meters of the guide have been fully installed and aligned. On March 7th, right on schedule, the jackhammers were brought into play to prepare the ground for the future neutron imaging station NEXT, which will succeed the D50 neutron tomography instrument.

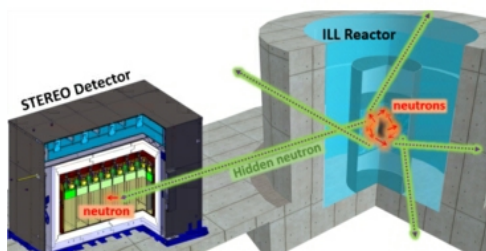
Other projects are also running well: the project for a new Heussler monochromator on IN20 has been relaunched, and the studies for the manufacture of a new production volume of ultra-cold neutrons on SuperSUN have been completed; manufacture has been launched. Work on the H1-H2, H24 and H15 guides has progressed well. [Read More](#)

HIGHLIGHTS AND SCIENCE NEWS



One step closer to quantum and magnonic devices

New research published in Science has brought us a step closer to magnonic devices and quantum computing. Scientists around the world are trying to imagine new systems for transporting and storing information. One of the tracks to explore is the use of magnetic spin waves rather than electrons - to limit the enormous losses of thermal energy associated with our electronic devices. A team of researchers working on manganese silicide, initially taken from cosmic dust, and using polarised neutron scattering on ThALES, has shown that the propagation of a magnetic wave perpendicular to skyrmions (a very special configuration, in the form of magnetic vortex tubes) occurs not in a straight line but with circular motion. The discovery of this mode of movement provides crucial knowledge for the control and manipulation of magnetic waves in so-called "magnonic" devices. [Read more](#)



Searching for hidden neutrons

What and where is the 25% of the universe we call "dark matter"? Could there be a hidden world (physicists speak of a "hidden brane") into which ordinary matter could fall, crossing into the "dark side" in the process? The STEREO experiment has just pushed back the limits of this new world, by more than an order of magnitude. The idea was to test the hypothesis that a neutron could convert into a hidden neutron, propagate through a hidden brane and reappear further on in our usual world. In the end, no significant excess of neutrons was detected. [Read more](#)



Neutrons help reveal details of the binding of a human pathogen to our cells

Pseudomonas aeruginosa is an opportunistic human pathogen that causes severe infections in immunocompromised patients. *P. aeruginosa* and other pathogenic bacteria use several virulence factors to promote their infectivity, including sugar-binding proteins. Teams of researchers at CERMAV (CNRS) and the ILL have used neutron protein crystallography and the production of deuterated protein and sugar to study how *Pseudomonas aeruginosa* binds to host cells. [Read more](#)

[MORE HIGHLIGHTS HERE !](#)

NEWS FOR USERS

Proposal rounds

With the upgrade programme well underway, a reactor restart in early December 2022 is still looking realistic; this will provide a **small amount of beamtime to users at the end of 2022** for selected instruments. Applications for this potential beamtime can be made via the User Club throughout the year, up to the September call deadline.

More information will be provided via the usual channels in due course, and will be available on the [ILL web site](#).

The ILL user programme will be **back in full swing in 2023**, with three cycles scheduled before the summer break. The experiments to be scheduled during the first semester of 2023 will be selected during the **panel meetings on 7-8 November 2022**, and applications should be submitted **before 7 September 2022** (midnight central European time).

[Previous issues of the ILL newsletter](#)

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