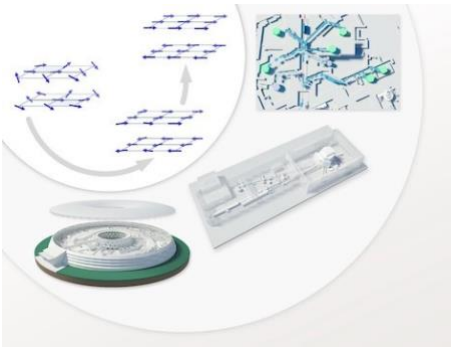
PAUL SCHERRER INSTITUT

PSI facilities newsletter

https://www.psi.ch/science/facility-newsletter
https://synchrotron-analysis.ch/

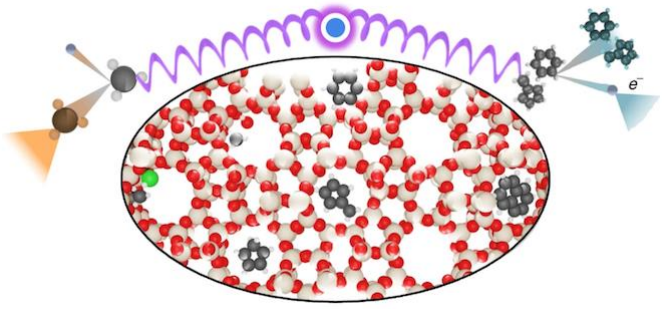
SLS/SINQ/SμS: *THREE PSI RESEARCH FACILITIES REVEAL MAGNETIC CROSSOVER*



The two-dimensional van der Waals material CrSBr exhibits a remarkable spectrum of magneto-electric properties that make it a promising ingredient for spin-based electronic devices. However, the complexity of its behaviour also poses a challenge when it comes to gaining a fundamental mechanistic understanding of this system. To unravel the magnetic and structural characteristics of CrSBr, and how they change with temperature, researchers led by the University of Geneva have now carried out complementary experiments at three PSI facilities — SμS, SINQ and SLS — as well as magnetization measurements. In doing so, they obtained deep insight into th e dynamic magnetic landscape of this layered material, finding in particular evidence for a spin dimensionality crossover at ~40 K, which they suggest to be at the origin of a low-temperature hidden order in CrSBr.

S.A. López-Paz et al.*, Nature Communications* ***13****, 4745 (2022)*
DOI: 10.1038/s41467-022-32290-4

REACTION INSIGHTS HELP MAKE SUSTAINABLE LIQUID FUELS



Methanol, produced from carbon dioxide in the air, can be used to make carbon-neutral fuels. But to do this, the mechanism by which methanol is turned into liquid hydrocarbons has to be better understood, so that the catalytic process can be optimised. Now, researchers from ETH Zurich and PSI have gained unprecedented insight into this complex mechanism by exploiting operando photoelectron photoion coincidence (PEPICO) spectroscopy, which has recently been established at the VUV beamline of SLS as a powerful analytical tool in catalytic reactions. PEPICO combines photoelectron spectroscopy and mass spectrometry, to give detailed information on the gas-phase reaction intermediates, including the differentiation between isomers. The findings now obtained underline the potential of the method to provide valuable mechanistic insights into complex reaction networks.

A. Cesarini et al.*, Nature Catalysis* ***5****, 605 (2022)*
DOI: 10.1038/s41929-022-00808-0

NEW OPPORTUNITIES FOR SMES! FUNDED ACCESS TO EUROPEAN LIGHT SOURCES

LEAPS-INNOV is funding an access programme that is tailor-made for SMEs through a programme called "TamaTA-INNOV", for which SMEs can apply using a very simple form.
The **second call for SMEs proposals is open** from September 9, 2022 to July 28, 2023.

Read more: *https://wayforlight.eu/en/industries/*