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XMaS, The UK Materials Science Beamline At The ESRF

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XMaS/BM28 is a UK-National Research Facility funded by EPSRC and located at the ESRF, the European Synchrotron in Grenoble (France). The project is jointly managed by the Universities of Warwick and Liverpool. The beamline has been supporting UK materials scientists since 1997 in a wide range of disciplines spanning physics, chemistry, environmental sciences, materials and engineering but also medicine and cultural heritage.

XMaS was originally designed for the exploration of magnetic materials using scattering techniques that remains a core activity of the facility, benefiting from a large suite of sample environments available on the beamline (e.g. low/high temperatures, magnetic and electric fields ...). The recent facility upgrade has extended the energy spectrum of the facility from 2.035 keV up to 47 keV thus opening new opportunities for studies at the L-edges of 4d-transition metals and K-edges of light rare-earths (e.g. Sm, Nd ...).

In addition to the main synchrotron beamline, XMaS also provides access to two offline laboratories. The first one, equipped with a Cu micro-source and a 4-circle Huber diffractometer, is optimized for diffraction and reflectometry studies using a 2D MAXIPIX detector. The second one is used to perform electrical characterization as a function of temperature (2 - 800 K) and applied magnetic fields (up to 4 T).

Some case studies will be presented to illustrate the capabilities of the beamline. More highlights can be found in our annual Newsletter¹. A complete description of the beamline is available at www.xmas.ac.uk. One can also follow us on the social media X (@XMaSBeam) or contact us directly at xmas@esrf.fr.

REFERENCES

1. www.xmas.ac.uk/impact/newsletters/

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