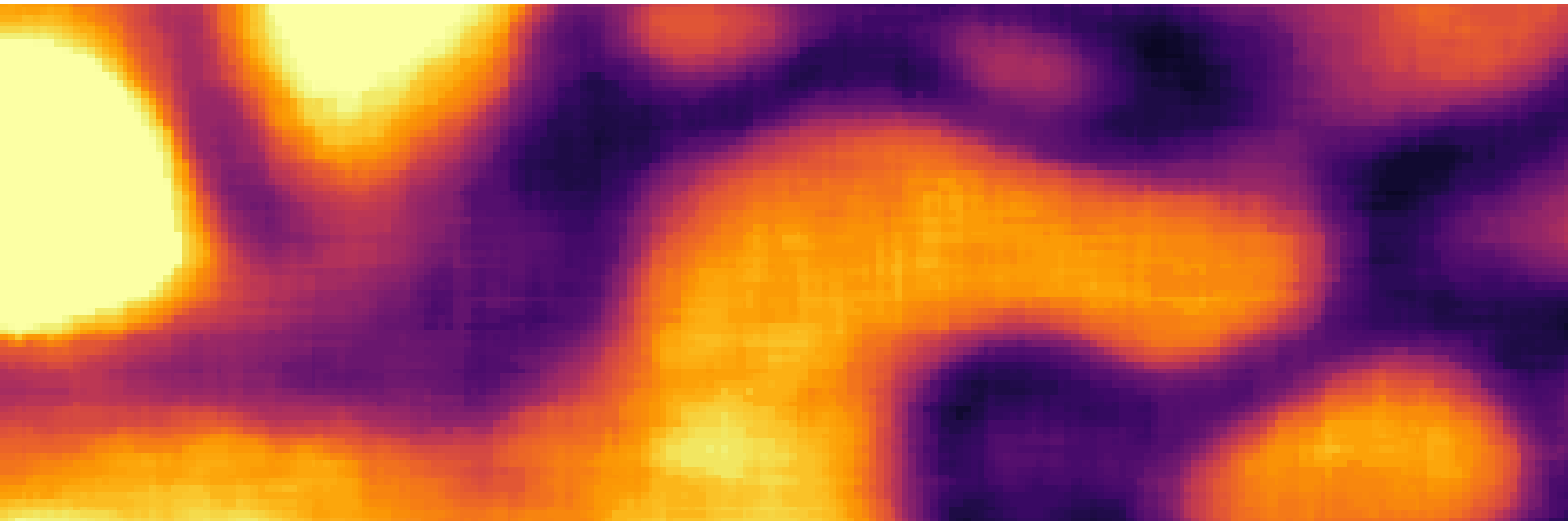




Qnami ProteusQ™

Capture surface magnetic fields at the atomic scale

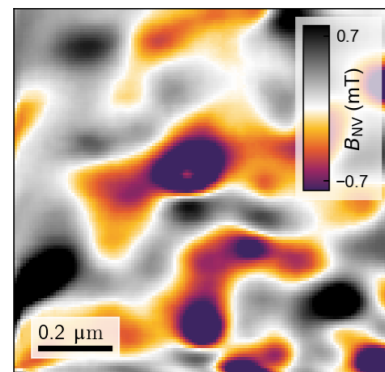
Imaging Modalities Gallery



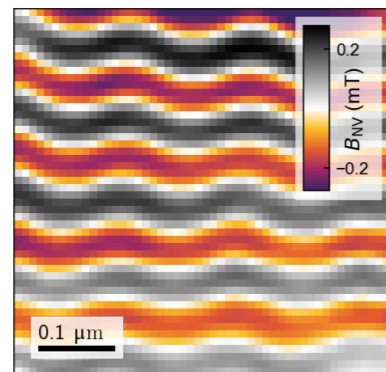
Qnami ProteusQ™ Imaging Modalities

Full B mode

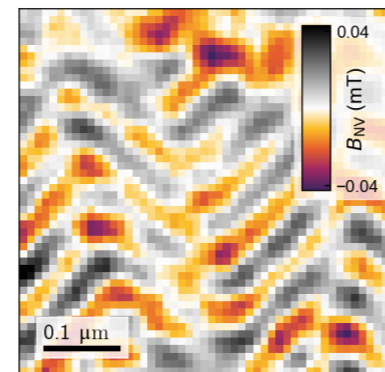
Full B measurement to determine the full quantitative magnetic landscape of the sample
B-field range: < 1 mT • **Measurement time for 100x100 pixels:** ~3h • **B-field information:** quantitative



Antiperovskites
Sample: Mn_3GaN
Context: characterize surface magnetism of frustrated magnets



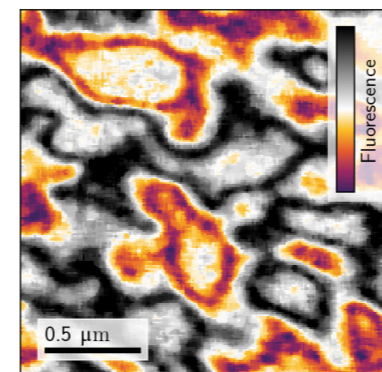
Antiferromagnetic Spintronics
Sample: $BiFeO_3/SmScO_3$
Context: extract fundamental quantities such as magnetic moment of spin cycloids



Antiferromagnetic Spintronics
Sample: $BiFeO_3/DyScO_3$
Context: identify spin waves which may be used to transport information in energy-efficient ways

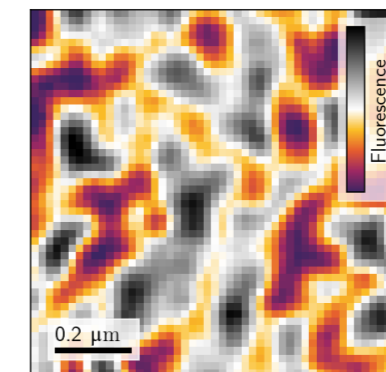
Dual iso-B mode

Dual iso-B measurement for fast quantitative imaging of magnetic topography with improved signal-to-noise
B-field range: < 1mT* • **Measurement time for 100x100 pixels:** ~4min • **B-field information:** semiquantitative

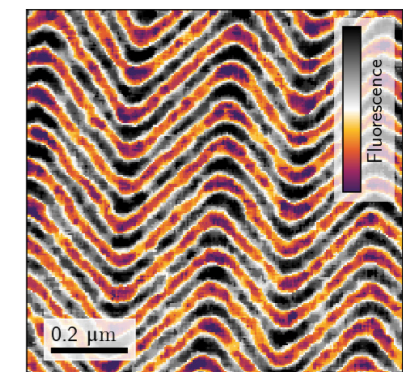


Ferrimagnets
Sample: YIG
Context: measure magnetic textures in ferrimagnets with ultra-low magnetic damping factors

*Qualitative between 1-3 mT



Multiferroics with complex components
Sample: BTFM-CTO
Context: reveal exotic spin textures from high-quality oxide epitaxy with precisely controlled composition

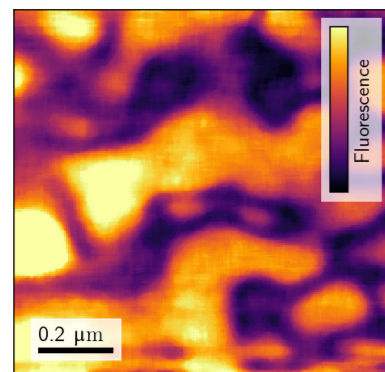


Exotic Multiferroics**
Sample: $BiFeO_3/DyScO_3$
Context: identify cycloidal modulation of antiferromagnetic order, interacting with ferroelectric domains

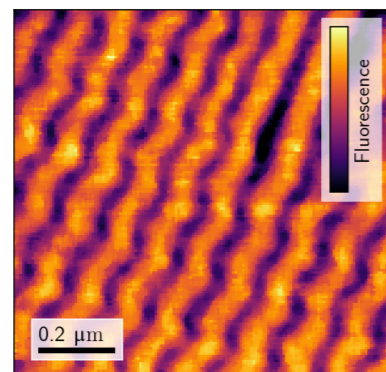
**Image: Laboratoire Charles Coulomb (L2C)

Iso-B mode

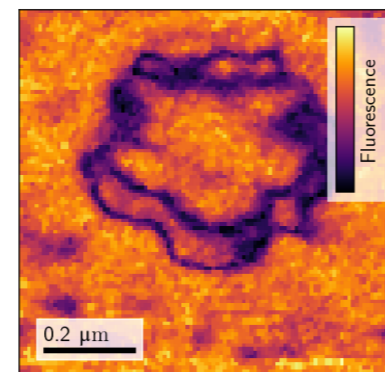
Single iso-B measurement for fast qualitative imaging of magnetic topography and contours
B-field range: < 3 mT • **Measurement time for 100x100 pixels:** ~2min • **B-field information:** qualitative



Antiperovskites
Sample: Mn_3GaN
Context: characterize magnetic texture at the surface of antiferromagnets



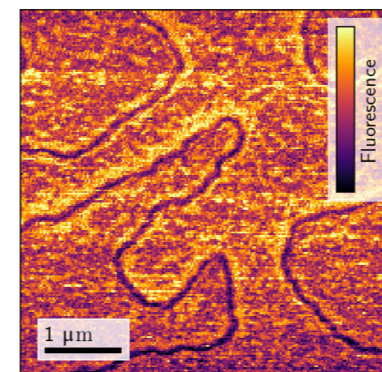
Antiferromagnetic Spintronics
Sample: $BiFeO_3/SmScO_3$
Context: identify periodic magnetic textures with ultra-high resolution



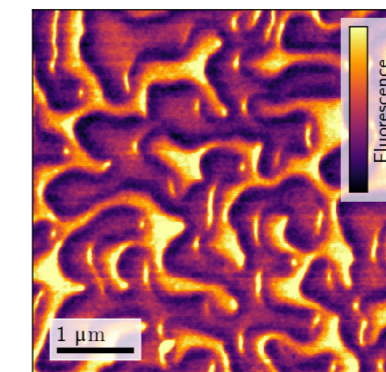
Synthetic Antiferromagnets
Sample: Co/Ru/Pt/Co
Context: measure ultra-thin ferromagnets and advanced magnetic stacks for future MRAM devices

Quenching mode

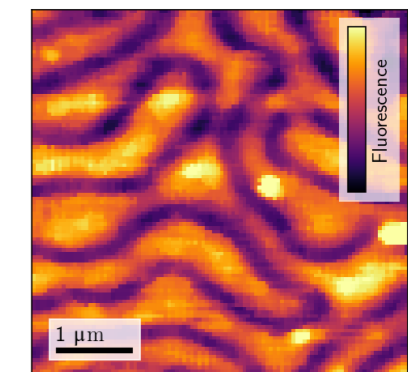
Quenching measurement for qualitative analysis to observe magnetic domain boundaries
B-field range: > 3 mT • **Measurement time for 100x100 pixels:** ~2min • **B-field information:** qualitative



Synthetic Antiferromagnets
Sample: Co/Ru/Pt/Co
Context: localize antiferromagnetic domains



Ferromagnets
Sample: $[Co/Pt]_n$
Context: reveal complex ferromagnetic structures in multilayer strong ferromagnets



Ferromagnets
Sample: Bi-YIG
Context: locate domain walls of magnonic materials

Next level in precision

Qnami ProteusQ™ is a complete quantum microscope system. It is the first scanning NV (nitrogen-vacancy) microscope for the analysis of magnetic materials at the atomic scale.

The Qnami ProteusQ™ system comes with state-of-the-art electronics and software. Its flexible design allows for future adjustments and scaling, expansion, and capability upgrades.

The proprietary Qnami ProteusQ™ quantum technology provides high precision images for you to see directly the most subtle properties of your samples and the effect of microscopic changes in your design or fabrication process.

Further literature about the Qnami ProteusQ™ Imaging Modalities:



Qnami ProteusQ™ Imaging Modalities

A technical note to explain the working principles and showcase the measurement outcomes of the four different imaging modalities available with Qnami ProteusQ™.



Use Cases for Qnami ProteusQ™ Imaging Modalities

A whitepaper to give an overview of the most appropriate Qnami ProteusQ™ imaging modalities for different samples of interest.

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