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Advances in Neutron Imaging

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Neutron imaging has seen a remarkable transformation from a non-destructive testing tool spotting cracks on millimetre length scales in industrial components to a diverse research tool in material science and beyond. Direct spatial resolutions of a few micrometers are state of the art today, but also structural features down to the Angstrom regime can be probed through modalities sensitive to scattering.
In contrast to conventional attenuation contrast, today neutron imaging techniques are capable of considering and quantifying signals from small angle scattering, diffraction, magnetic interaction and quasi/inelastic scattering. This has paved the way to a wide range of contributions in numerous fields of research and unique insights into materials and processes that are of significant relevance in academia, industry and eventually society.
An overview of advanced neutron imaging and the respective contrast modalities and techniques shall be provided alongside a few selected science cases of neutron imaging today.

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