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Establishment of Methods for Spatial Resolution Assessment in Digital Neutron Radiography and Tomography Facilities

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Digital neutron radiography and tomography analytic techniques have found applications ranging from quality assurance to research because of the unique nature of interaction of neutron with materials. These radiation based imaging analytical techniques have gained acceptance because they are non-destructive and their output are radiographs or tomograms in real space. Neutron Radiography facilities provide results which lead to quality related decision making or diagnosis of an abnormality – therefore it is necessary to qualify the performance of the setup. Spatial resolution has been identified as one of the important key factors for characterization of the performance of radiography and tomography setups. It can be assessed using discrete and continuous test objects, as well as using statistical correlation methods.

This contribution assesses and adapts methods for evaluation of the spatial resolution of radiography and tomography facilities through the design of test objects, experimental protocol, data post processing and analysis procedures. Spatial resolution characterization methods which are assessed and adapted are Discrete Spatial Resolution Method (SSRM), Modulation Transfer Function (MTF), Fourier Ring correlation (FRC) and Spectral Signal-to-Noise Ratio (SSNR).

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

PhD

Main supervisor (name and email) and his / her institution

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Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

No

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