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Wavelength-resolved neutron imaging on IMAT

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The 'IMAT' instrument, which specializes in Imaging and MATerials science, is now well into its commissioning phase. The basic performance parameters for white-beam tomography and energy-dispersive neutron imaging have been determined [1] and the instrument is currently being prepared for user operation [2]. Here we report on the evaluation of the wavelength-resolving imaging options on IMAT, including pink-beam imaging using disk choppers and energy-dispersive Bragg edge imaging using time-resolving detectors. These time-of-flight techniques enable image contrast enhancement and mapping of structure properties. We will review the recent infrastructure installations and software developments that have been undertaken to take advantage of these techniques, making the facility ready for applications in a diverse range of disciplines such as engineering material science, battery research, earth science and cultural heritage.

[1] T. Minniti, et al., Nucl. Instr. Methods A 888 (2018) 184.
[2] W. Kockelmann et al., J. Imaging 4 (2018) 47.

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