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Single crystal developments on Wombat, the high intensity neutron diffractometer at ANSTO

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The Wombat instrument is one of a few neutron diffraction instruments in the world to have a large position sensitive (effective area) detector, which has greatly supported the wide range of science applications and outcomes the instrument is able to undertake [1]. To date there have been limited single crystal studies undertaken on the Wombat instrument due to peak integration software being unavailable. Recently, we have liaised with the developers of the software INT3D [2] to overcome this. The work presented will showcase recent experiments on Wombat that have utilised this new analysis pipeline, as well as the Eulerian cradle with cryostat option. Coupled with this development in single crystal analysis, there is also work afoot to streamline crystallographic texture and diffuse scattering measurements on the instrument, which would also make full use of the detector capability.

[1] Maynard-Casely, Tobin et al, (2025) arxiv.org/abs/2504.19429 submitted to J App Cryst

[2] Katcho, N. A., et al (2021). Crystals, 11(8), 897.

Author: TOBIN, Siobhan (ANSTO)

Presenter: TOBIN, Siobhan (ANSTO)

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