

The BILBY small-angle neutron scattering instrument

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BILBY [1] is a time-of-flight (ToF) small-angle neutron scattering (SANS) instrument operated by the Australian Centre for Neutron Scattering (ACNS) at the Australian Nuclear Science and Technology Organisation (ANSTO). It entered the user program in 2016 and complements the established SANS capability at the ACNS - the monochromatic pin-hole SANS instrument QUOKKA [2] and the USANS instrument KOOKABURRA [3].

Utilising an array of position sensitive detectors and ToF, BILBY can measure a large Q -range in a single measurement ($\sim 0.001 - 1.8 \text{ \AA}^{-1}$). This characteristic makes BILBY well suited to the study of materials over time. Additionally, the choppers can be used to tune the wavelength resolution ($\Delta\lambda/\lambda$) to values between approximately 3 - 30%. The high wavelength resolutions are well suited to the study of liquid crystals, while the lower wavelength resolutions are well suited to measurements where neutron flux is important, such as a kinetic experiments.

Over 30 peer reviewed articles that have utilised the BILBY SANS instrument are now published. Here, we will present details regarding the instrument, together with some scientific highlights from the first few years of operation

[1] A. Sokolova et al, J. Appl. Crystallogr. 52, 1-12 (2019)

[2] K.Wood et al, J. Appl. Crystallogr. 51, 294-341 (2018)

[3] C. Rehm et al, J. Appl. Crystallogr. 51, 1-8 (2018)

Level of Expertise

Experienced Researcher

Do you wish to take part in the poster slam

No

Travel Funding

No

Speakers Gender

Female

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