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Quokka, the Pinhole Small-Angle Neutron Scattering Instrument at ANSTO

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Quokka was the first Small Angle Neutron Scattering instrument to be in operation at the Australian research reactor, OPAL [1]. It is a 40 m pinhole instrument operating with a neutron velocity selector, an adjustable collimation system providing source-sample distances of up to 20 m and a two dimensional 1 metre square position-sensitive detector, capable of measuring neutrons scattered from the sample over a secondary flight path of up to 20 m. Also offering incident beam polarization and analysis capability as well as lens focusing optics, Quokka has been designed as a general purpose SANS instrument with a large sample area, capable of accommodating a variety of sample environments. Calibrated absolute scattering intensity measurements in a standard setup may be made over a range of wavelengths between 4 x 10-3 Å-1 and 0.7 Å-1.
Here we describe Quokka's design characteristics, performance and operation, including a high count rate detector, installed in 2018.
Outputs from Quokka have been published in diverse fields such as magnetism, metallurgy, mineralogy, structural biology, polymers, food science and soft matter. We present here a selection of recent scientific highlights.

[1] K. Wood [...] and G. Elliot, J. Appl. Cryst. 51 (2018) 294.

Speakers Gender

Female

Level of Expertise

Experienced Research

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No

Primary author(s) : WOOD, Kathleen (Australian Nuclear Science and Technology Organisation)

Co-author(s) : GARVEY, Christopher (Australian Nuclear Science and Technology Organisation); MATA, Jitendra (ANSTO); WAKEHAM, Deborah; WU, Chun-Ming (NSRRC); Prof. GILBERT, Elliot (Bragg Institute, Australian Nuclear Science and Technology Organisation)

Presenter(s) : WOOD, Kathleen (Australian Nuclear Science and Technology Organisation)

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