

QUOKKA, THE PINHOLE SMALL-ANGLE NEUTRON SCATTERING INSTRUMENT AT THE OPAL RESEARCH REACTOR, AUSTRALIA: DESIGN, PERFORMANCE AND OPERATION.

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QUOKKA was the first SANS 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 m² 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. Some of these sample environments are, a Rapid Heat Quench Cell enabling a sample to be studied in situ following a thermal shock (-120°C to 220°C); The neutron Rapid Visco Analyser (nRVA) which enables SANS to be measured simultaneously with viscosity via an RVA –an instrument widely used within the food industry; In-situ Differential Scanning Calorimetry (DSC); A stopped flow cell, and RheoSANS.

Here we describe QUOKKA's design characteristics, performance and operation, including a high count rate detector, installed in 2018.

[1] K. Wood et al, J. Appl. Cryst. 51 (2018) 294.

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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