
Quokka - 40 metre reactor based monochromatic small angle neutron scattering instrument

Christopher J. Garvey¹, Elliot P. Gilbert², Jitendra Mata¹, Kathleen Wood², and Chun-Ming Wu³

¹ Australian Nuclear Science and Technology Organisation, Locked Bag 2001, Kirrawee DC NSW 2232, Australia

² Australian Nuclear Science and Technology Organisation, Locked Bag 2001, Kirrawee DC NSW 2232, Australia, Australia

³ National Synchrotron Radiation Research Center, 101 Hsin-Ann Road, Hsinchu Science Park, Hsinchu 300, Taiwan, Taiwan

Quokka since it entered user service in 2009, has serviced the needs of the Australia neutron scattering community, but also has provided some innovative capabilities for those international users. Here we describe the current state of the Quokka instrument, and those developments in the instrument capabilities and its sample environments. The instrument is designed to enable measurements of scattered intensity on an absolute intensity scale over three orders of magnitude of the momentum transfer ($3 \times 10^{-4} \text{ \AA}^{-1} < q < 0.7 \text{ \AA}^{-1}$). The instrument is able to perform polarized neutron experiments and a new high count rate detector will be commissioned on the instrument next year. While the instrument has successfully engaged those traditional users of small angle scattering, the instrument has a particularly Australian context for its further development, and a nascent community has been stimulated to widen the user base in terms of scientific area.