

The new neutron imaging station DINGO at OPAL

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A new neutron imaging instrument will be built to support the area of neutron imaging research (neutron radiography/tomography) at ANSTO. The instrument will be designed for an international user community and for routine quality control for archaeology, geology, defence, industrial, mining, space and aircraft applications. It is also a useful tool for assessing hidden features from corroded samples and magnetic imaging of core drill sample to understand human impact in different areas of Australia[2]. The instrument is fully installed and will be operational by end of 2013. The designated instrument position for DINGO [1] is the beam port HB-2 in the reactor hall. The estimated flux for an L/D of approximately 500 at HB-2 is calculated by Mcstas simulation in a range of $4.75 * 10^7$ [n/cm²s]. A special feature of DINGO is the in-pile collimator place in front of the main shutter at HB-2. The collimator offers two pinholes with a possible L/D of 500 and 1000. A secondary collimator will separate the two beams and block one. The whole instrument will operate in two different positions, one for high resolution and one for high speed.

[1] U. Garbe, C. Hughes, T. Randall, The new neutron radiography / tomography / imaging station DINGO at OPAL, J. Nuclear Instr. And Methods in Phys. Research, Volume 651, Issue 1, 42-46 (2011).

[2] Rosendahl, Daniel, The way it changes like the shoreline and the sea: the archaeology of the Sandalwood River, Mornington Island, southeast Gulf of Carpentaria, Australia PhD Thesis, School of Architecture, The University of Queensland (2012).

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