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New developments in neutron imaging at DINGO

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The neutron radiography / tomography / imaging instrument DINGO is operational since October 2014 to support research at ANSTO. DINGO provides a useful tool to give a different insight into objects. A major part of applications from research and industrial users was demanding high resolution setup and fast scans on DINGO. The neutron beam size can be adjusted to the sample size from 25 x 25 mm² to 200 x 200 mm² with a resulting pixel size from 12µm to ~100µm. Depending on the sample composition a full tomography has been taken in 10 minute – 36 hours. During the recent OPAL long shutdown, a new sapphire filter has been installed to reduce the amount of epithermal and fast neutrons at the sample position. These high energy neutrons do not contribute to the image, only as noise, and increasing the radiation levels around the CMOS camera. This update will improve the image quality as well as the reliability of the whole instrument.

In addition, we implement a new type of neutron tomography scan to address long samples like in drill cores. These samples can now be scanned horizontal up to 1.2 meter in length. For small core sizes we can run up to three cores in one scan, which makes DINGO a very competitive instrument for fast high throughput imaging.

A new software package for 3D reconstruction has been developed as well. It is an open source package based on the python toolbox “tomopy” with a GUI custom made for DINGO to enable users to run the reconstruction on their own computing environment.

Level of Expertise

Expert

Presenter Gender

Non-Binary

Pronouns

Which facility did you use for your research

Australian Centre for Neutron Scattering

Students Only - Are you interested in AINSE student funding

No

Do you wish to take part in the Student Poster Slam

No

Condition of submission

Yes

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