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Progress on the CT program at the Imaging and Medical beamline

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The Imaging and Medical Beamline (IMBL) of the Australian Synchrotron (AS) is now becoming one of the most advanced instruments of this type in the world. It is designed to provide a wide variety of imaging techniques. Three beamline's enclosures at various distances provide the end user a good choice of beam characteristics ranging from the hi-flux for lower resolution and size up to huge 48x5cm beam at 134m from the source with the allowed energy range 17-120kEv. The wide range of the area detectors at the beamline allows the computed tomography (CT) to be combined with almost any known X-ray imaging modality. The beamline's data acquisition system is directly linked to the high performance computing facility: MASSIVE tuned for the on-the-fly real-time reconstruction and 3D volume rendering. Advanced CT experiment control system with the unprecedented level of flexibility allows users to implement many of their ideas and construct an absolutely new experiment logic with minimal efforts and time. Deep integration of the acquisition, reconstruction and rendering facilities allows one to think of the their combination as of a a single system with modular architecture. This report summarizes implemented, designed and planned features of the beamline as applied to the CT type of the experiment. Brief overview of the CT experiments conducted in this year is given. Some latest outcomes of the CT system are presented with the samples coming of different fields of science: biology, geology, paleontology, material science and medicine.

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