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Overview of the 'New' Imaging and Medical Beamline

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The Imaging and Medical Beamline (IMBL) opened for users in October 2012. In 2013 June 2015 was set as milestone for completing the Phase II research infrastructure funded by NHMRC. To achieve this we embarked on an ambitious design and implementation programme requiring 50% of the beamtime for development and commissioning, a considerable loss for our users. We however reached our objectives by June 2015 so that new and/or higher performance research techniques and facilities are now commissioned. Consequently 75% of the beamtime is now available to users, 90% in 2016. We therefore encourage new and established users from material science to clinical research to apply enthusiastically for beamtime. With this in mind we will describe the new facilities in detail and illustrate their performance with results from recent experiments. Meanwhile a recap of the main IMBL characteristics and facilities is given below.

- Source to sample distance up to 135m, beam size up to 4cm x 50cm (white and monochromatic).
- 7 detectors with a wide range of field of view, resolution, efficiency and speed.
- Extensive research infrastructure for *in vivo* studies with animals ranging from rodents to sheep.
- 3 main modes of operation: High dose step-and-shoot microbeam radiation therapy at 20m; High speed computed tomography (CT) and dynamic MRT at 35m; High resolution imaging and CT at 135m.

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Primary author(s) : HAUSERMANN, Daniel (Australian Synchrotron)

Co-author(s) : Dr STEVENSON, Andrew (Australian Synchrotron/ CSIRO); Dr MAKSIMENKO, Anton (Australian Synchrotron); Dr HALL, Chris (Australian Synchrotron); Dr PELLICCIA, Daniele (RMIT University); Dr PEARSON, James (IMBL / Monash University); Dr LIVINGSTONE, Jayde (Australian Synchrotron); ACRES, Robert (Australian Synchrotron)

Presenter(s) : HAUSERMANN, Daniel (Australian Synchrotron)

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