

5th Italy-Australia Workshop:

“Synchrotron Radiation X-Ray Imaging for Life Sciences & Cultural Heritage”

**Some recent developments in X-ray phase-contrast imaging and materials
determination using SR**

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Some recent developments in X-ray phase-contrast imaging and related studies will be described, especially relating to work carried out at CSIRO, Monash University and at the Australian Synchrotron. A central theme in the talk will be on the use of combined imaging techniques to get greater information on sample properties.

Examples from biomedical studies as well as materials science will briefly be described.

In the case of biomedical studies, these will include various types of lung and brain tissue studies. For brain tissue studies, combination with X-ray microfluorescence can be a valuable complementary source of complementary information.

In the case of materials science studies, a generalized approach to the determination of materials properties, called Data Constrained Modeling (DCM) will be described that ideally combines multi-energy micro-CT plus other sources of information about the sample such as might be derived from SAXS, X-ray microfluorescence and wide-angle diffraction data. Application to geophysical samples will be described by way of illustration.