

XANES Imaging and Elemental Mapping of Cultural Materials at the XFM Beamline

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Rapid elemental mapping and XANES imaging have helped advance the analysis of cultural materials at the XFM beamline of the Australian Synchrotron. Whole artworks or historical objects can be scanned in a reasonable time thanks to the event-mode data acquisition with the Maia detector, which yields dwell times on the order of a millisecond. The short dwell times also minimize radiation dose – important for objects where radiation damage is a major concern. The large area scanning apparatus, named the milliprobe, has been commissioned for the safe and rapid examination of cultural materials. The elemental mapping of artworks and historical objects using the milliprobe will be given, along with examples of XANES imaging of radiation-sensitive paints.