

Workshop on Detectors for Synchrotron Research

Highlights of the Timing Group report

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Synchrotron radiation has been used primarily to measure static properties of materials, but dynamic time-resolved measurements are becoming increasingly important in biology, chemistry, and materials science.

The increasing interest in time-resolved measurements is driven by the increasing capability of sources.

Source capability is beginning to outstrip detector capability for fast time-resolved measurements.

Best time resolution of existing detectors (1-100 ps) is OK for storage-ring experiments, but insufficient for future sub-ps FEL experiments.

Also, existing fast detector technology (streak cameras, fast diodes, gated electron detectors) is often not configured well for synchrotron experiments (poor quantum efficiency, not available in pixel arrays, high cost).

Need to stimulate R&D to make existing timing technology more friendly and accessible.

Also, need to define promising development paths for future timing technology, pursue possible tie-ins with high-energy physics.