

## **Detectors for Energy Dispersive EXAFS (EDE)**

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### ***Abstract***

EXAFS is an extensively used mature technique performed at many synchrotrons around the world. It can determine local environment around a specific atom and has been applied to samples as diverse as brain tissue, locust teeth and industrial paints.

Energy dispersive EXAFS (EDE) is a relatively new technique which allows EXAFS data to be collected extremely quickly. This affords the exciting opportunity to study the EXAFS of samples as they change in real time. State of the art EDE experiments are now exploring changes occurring in the millisecond time frame and below. In order to gain good quality data from this technique, there are a number of prerequisites; these include a very high intensity photon source, extremely stable x-ray optics and a high quality fast detector.

This presentation will cover the basics of the technique, along with the specific detector requirements. It will then review the detectors that are available for this technique, highlighting specific strengths and weaknesses for each. The impact of these strengths and weaknesses on collected data will be demonstrated. Finally, the presentation will indicate what possibilities exist in the future for this technique and the detector advances that will be necessary in order to unlock these opportunities.