Contribution ID: **53** Type: **not specified**

Development of an energy resolving Multi-Element Germanium Detector at Diamond

Thursday 5 July 2012 14:10 (25 minutes)

With three beam lines and four end stations devoted to EXAFS experiments, absorption spectroscopy is one of the major experimental techniques available at Diamond Light Source. Energy resolving fluorescence detectors are the most used in EXAFS experiments with dilute elements and are the part that most often limits the performance of EXAFS beam lines. In this talk I will describe briefly the physical principle and detector requirements of EXAFS experiments. After that I will show how fluorescence detectors in use at Diamond try to meet such requirements. In particular the joint Diamond/STFC/Canberra development of a monolithic 64 elements germanium detector will be described as well as its performance. Finally a possible development envisaged to further improve detector performance is shown.

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Session Classification: Energy dispersive detectors

Track Classification: Energy dispersive detectors