

Germanium multi-element fluorescence detectors. A systems approach

G. Derbyshire

Rutherford Appleton Laboratory, Didcot , Oxfordshire, UK

The use of High Purity Germanium (HPGe) detectors within XAFS is wide spread. The early work at the CCLRC's SRS at Daresbury led to improved detector design and the realisation that not only the detector but the whole system should be considered together. This is to ensure that a working system can be operated day after day which has a high degree of ease of use. Working together with a commercial supplier a new detector concept was proposed which was made reality by ORTEC with the monolithic multielement C-TRAIN detector series. The C-TRAIN detector was developed to match the adaptive signal processing system X-SPRESS that was developed by the CCLRC. The X-SPRESS system allows ease of use and a degree of flexibility not afforded by standard analogue or digital systems. This system was built in a way to allow development of experimental technique without radical changes in hardware. This approach is now being shown to be of great benefit in building the next generation of XAFS detector systems for both the new experimental stations on the SRS, such as beamline 10 (Protein Crystallography) and the X-ray spectroscopy stations DIAMOND.