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## **Progress in multi-element silicon detectors for synchrotron XRF applications**

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Multi-element silicon strip detectors, in conjunction with integrated circuit pulse-processing electronics, offer an attractive alternative to conventional lithium-drifted silicon and high purity germanium detectors for high count rate, low noise synchrotron x-ray fluorescence applications. We have been developing these types of detectors specifically for low noise synchrotron applications, such as extended x-ray absorption fine structure spectroscopy, microprobe x-ray fluorescence and total reflection x-ray fluorescence. The current version of the 192-element detector and integrated circuit preamplifier, cooled to  $-25^{\circ}\text{C}$  with a single-stage thermoelectric cooler, achieves an energy resolution of  $<200$  eV FWHM (at 5.9 keV, 2 microseconds peaking time), and each detector element is designed to handle a  $\sim 20$  kHz count rate. The detector system will soon be completed to 64 channels using new IC amplifier chips, CAMAC ADCs, CAMAC histogramming modules, and Macintosh-based data acquisition software. We will report on the characteristics of this detector system, the characteristics of the next generation system (192 channels with IC ADCs), and the use of these detector systems in synchrotron XRF applications.

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