

# Development of a Spectrometer for Inelastic X-ray Measurements

Basil Blank, Tom Kupp, Eric Johnson, Alex Deyhim, Yong Cai\*,  
Paul Chow\*, Chi-Chang Kao\*\*

*Advanced Design Consulting, Inc., 126 Ridge Road, PO Box 187, Lansing, NY 14882  
Phone: (607) 533-3531; Fax: (607) 533-3618  
E-mail: adc@adc9001.com; Web: www.adc9001.com*

*\* Synchrotron Radiation Research Center (SRRC)  
\*\* Brookhaven National Laboratory (BNL)*

## **Abstract**

Advanced Design Consulting, Inc. (ADC) designed, fabricated and installed a spectrometer that is operating at the Spring-8 synchrotron in Japan as part of a dedicated inelastic beamline (BL12XU). The system is used for investigating electronic excitations with MeV volt resolution; therefore many of the specifications required high precision and accuracy on the micron level. The 3-meter analyzer arm on the spectrometer needed to have an angular stability measured in arc seconds over a long range of travel under vacuum conditions.

This paper summarizes the measurement data from different parts of the spectrometer describing the precision, angular accuracy, and stability.

**Keywords:** spectrometer, high precision, stability

**Presentation:** Poster