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**Sapphire Analyzers for Resonant Inelastic X-ray Scattering (RIXS)** HASAN YAVAS, Argonne National Laboratory / Michigan State University, ERCAN ALP, HARALD SINN, RUBEN KHACHATRYAN, YURI SHVYDKO, AHMET ALATAS, AYMAN SAID, Argonne National Laboratory, SIMON BILLINGE, Michigan State University — Back-scattering analyzers for inelastic x-ray scattering experiments are under development for over two decades. Large angular acceptance, good reflectivity makes this geometry attractive. So far Si and Ge have been successfully used, due to availability of good crystals. However, there is a need to find other crystals, as IXS experiments at specific energies near the atomic absorption edge may provide element specific electronic state information. Hence crystals of lower symmetry containing more than one element are of great interest. In this study, we have developed new manufacturing techniques to build spherically bent, diced sapphire analyzers. Procedures regarding dicing, etching and bonding will be discussed, and initial test results for Al<sub>2</sub>O<sub>3</sub> (0 4 14) at 8.9 keV will be presented.

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