Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Scatterless Hybrid Metal-Single Crystal Slit for Small Angle X-ray Scattering and High Resolution X-ray Diffraction.[1] YOULI LI, University of California Santa Barbara, ROY BECK, TUO HUANG, MYUNG CHUL CHOI, MORITO DIVINAGRACIA — A simple hybrid design has been developed to produce effectively scatterless aperture slits for small angle x-ray scattering (SAXS) and high resolution x-ray diffraction. The hybrid slit consists of a single crystal (Si, Ge) edge bonded to a tapered high density metal base. The beam-defining single crystal tip is oriented at a large tilt angle with respect to the beam and far from any Bragg peak position, and hence should produce no slit scattering commonly associated with conventional metal slits. The scatterless performance of the new slit design was confirmed by experiments conducted with laboratory x-ray sources as well as third generation synchrotron radiation. The new scatterless slits have been successfully used for SAXS application, where it led to a greatly simplified Single Aperture SAXS design with dramatically increased intensity (3-fold observed) as well as improved low angle resolution compared to a conventional three-pinhole set up.* Y. Li, R. Beck, T. Huang, M.C. Choi, M. Divinagracia, J. Appl. Cryst. (2008) 41, 1134-1139

[1]Supported by NSF MRI Development grant DMR-0619171

Youli Li
University of California Santa Barbara

Date submitted: 21 Nov 2008 Electronic form version 1.4