Abstract Submitted for the MAR06 Meeting of The American Physical Society

Nanometer Focusing X-rays With Multiple Kinoform Lenses¹ KENNETH EVANS-LUTTERODT, AARON STEIN, Brookhaven National Laboratory, NATIONAL SYNCHROTRON LIGHT SOURCE TEAM — It has been suggested that for refractive optics operating at photon energies of order 10 keV, that the resolution is limited to the wavelength divided by the critical angle. Using a compound kinoform lens consisting of individually optimized kinoform lenses, we investigate the possibility of exceeding this limit. Single-dimensional, kinoform lens stacks in deep-etched silicon have been fabricated that in principle can exceed the critical angle limit. These optics have been tested and the results will be presented. Additionally we present calculations that show that the resolution of radially-symmetric kinoform lenses is limited only by x-ray wavelength.

¹This abstract has been authored by Brookhaven Science Associates, LLC under Contract No. DE-AC02-98CH10886 with the U.S. Department of Energy.

> Aaron Stein Brookhaven National Laboratory

Date submitted: 30 Nov 2005

Electronic form version 1.4