1125-41-3034 **Huibin Cang** and **Stefano Marchesini*** (smarchesini@lbl.gov), MS 2-400, 1, Cyclotron rd, Berkeley, CA 94720-819, and **Anne Sakdinawat**, Stanford Linear Accelerator Center, 2575 Sand Hill Rd, Menlo Park, CA 94025. *Lens design for X-ray imaging.* Preliminary report.

X-ray lenses fabricated by lithographic methods are the most popular imaging forming optics because of their versatility, cost, and efficiency. The binary lithographic pattern can be modified to generate structured illumination to improve throughput, resolution, dynamic range and depth of field information. Lithography generates binary structures, known as Fresnel zone plates, which diffract at different harmonic orders and are affected by aliasing artifacts. We investigate the nonlinear problem whereby a binary structure provides the optimal illumination for a blind phase retrieval experiment with limited dynamic range detectors. (Received September 20, 2016)