Customizable references for X-ray holography

Andrew Martin
Univ. Melbourne, Australia

Holographic references provide a direct, unique way of recovering a real space image from a coherent diffraction pattern. However, to date this technique has only been possible with a limited set of special reference waves for which the image reconstruction procedure is known. We demonstrate X-ray Fourier-transform holography with an almost unrestricted choice for the reference wave, which enables flexibility of experimental design and provides new avenues to optimize signal-to-noise and resolution. We will show results obtained at FERMI and discuss the optimization of holographic references.