

Abstract Submitted
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Nano-Scale Resolution Spectro-Microscopy by Coherent X-ray Diffraction.¹ C. SONG, D. RAMUNNO-JOHNSON, H. JIANG, A. MANCUSO, J. MIAO, Physics and Astronomy, UCLA, M. DE JONGE, C. RAU, D. PATERSON, I. MCNULTY, Advanced Photon Source, ANL — Coherent x-ray diffraction microscope, with its spatial resolution limited only by signal-to-noise ratio, has paved a route to a generic nano-scope relieved from crystalline specimens and destructive sample preparation. We advanced it further as a versatile spectro-microscopy. By using stark contrast in x-ray scattering lengths in the vicinity of atomic absorption edges, we could identify elements distribution at a nanometer scale. As the element specificity is acquired from direct x-ray absorption, it provides full flexibility for *ab initio* imaging. Successful results on elemental mapping of nano-structures and single biological cells from 1-3 keV range coherent x-ray source will be presented.

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