Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Diffractive Imaging of Single Biomolecules NATHAN SCHMIDT, ROBERT CORIDAN, University of Illinois, Dept. of Physics, JOHN BUTLER, THOMAS ANGELINI, JIAN-MIN ZUO, GERARD WONG, University of Illinois, Dept. of Physics, Dept. of Materials Science and Engineering — The resolution of Electron Microscopy (EM) images is limited by instrumentation lens aberration. Moreover, many biomolecules and supramolecular complexes are too soft and too large to be crystallized, and crystalline diffraction provides only aggregate structural properties. Coherent nanobeam electron diffraction in principle allows for diffraction-limited resolution analysis of single biomolecules. Image recovery can be achieved using oversampling and iterative phase retrieval to solve the phase problem. We will discuss the use of coherent electron diffraction and its potential to improve TEM image resolution of biomolecular systems. Preliminary diffraction data obtained from cryogenically prepared biomolecules will be presented.

Abhijit Mishra
University of Illinois, Dept. of Materials Science and Engineering

Date submitted: 12 Jan 2006 Electronic form version 1.4