Abstract Submitted
for the DAMOP16 Meeting of
The American Physical Society

X-ray holography in-flight TAIS GORKHOVER, SLAC, ANATOLI ULMER, TU Berlin, KEN FERGUSON, SLAC, MAX BUCHER, ANL, TOMAS EKEBERG, MAX HANTKE, BENEDIKT DAURER, CARL NETTELBLAD, JOHAN BIELECKI, Uppsala University, GUILA FAIGEL, Hungarian Academy of Sciences, DIRK HASSE, Uppsala University, ANDREW MORGAN, CFEL@DESY Hamburg, KERSTIN MHLIG, MARVIN SEIBERT, Uppsala University, HENRY CHAPMAN, CFEL@DESY Hamburg, JANOS HAJDU, FILIPE MAIA, Uppsala University, THOMAS MOELLER, TU Berlin, CHRISTOPH BOSTEDT, ANL —
The advent of X-ray free-electron lasers, delivering ultra intense femtosecond X-ray flashes, opens the door for structure determination of single nanoparticles and biosamples with single shots. The first X-ray diffraction imaging experiments at LCLS delivered promising results on samples in the gas phase. However, the reconstruction of non-periodic structures is still challenging due to the loss of phase information. Meanwhile, X-ray holographic approaches allow for recording the phase directly into the diffraction image. In my talk, I will present the first successful proof-of-principle experiment for "in-flight"-holography with free viruses. Our experiments pave the way for unique studies on levitating nanospecimen that are of central interest in several scientific communities including atmosphere research, chemistry, material sciences, and studies on matter under extreme conditions.

Tais Gorkhover
SLAC

Date submitted: 31 Jan 2016 Electronic form version 1.4