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Imaging of Biological Tissues by Visible Light CDI DMITRY KARPOV, New Mexico State University, Los Alamos National Laboratory, TOMY DOS SANTOS ROLO, Karlsruhe Institute of Technology, HANNAH RICH, EDWIN FOHTUNG, New Mexico State University, Los Alamos National Laboratory — Recent advances in the use of synchrotron and X-ray free electron laser (XFEL) based coherent diffraction imaging (CDI) with application to material sciences and medicine proved the technique to be efficient in recovering information about the samples encoded in the phase domain. The current state-of-the-art algorithms of reconstruction are transferable to optical frequencies, which makes laser sources a reasonable milestone both in technique development and applications. Here we present first results from table-top laser CDI system for imaging of biological tissues and reconstruction algorithms development and discuss approaches that are complimenting the data quality improvement that is applicable to visible light frequencies due to it's properties. We demonstrate applicability of the developed methodology to a wide class of soft bio-matter and condensed matter systems. This project is funded by DOD-AFOSR under award No FA9550-14-1-0363 and the LANSCE Professorship at LANL.

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