

Imaging of Single Molecules

Stefano Marchesini, *Lawrence Livermore National Laboratory, Livermore, CA 94539, USA*. E-mail: smarchesini@llnl.gov

The path toward imaging single molecules with a free electron laser presents several challenges: from the particle injection and partial physical orientation to the ability to produce x-ray pulses that are short and intense. From short pulses required to the collection of the data with the appropriate detectors. From the classification of the orientation of millions of images to their phasing. Some of these problems will have to wait for the available sources, while others can be studied now by simulations or experiments. We will present some of these experiments, and discuss experimental requirements.

Keywords: non-crystallographic phase retrieval, biological molecules, instrumentation