Poster

HeXI: The High-energy Electron Xtallography Instrument at Diamond Light Source

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The HeXI project, funded by the Wellcome Trust "Electrifying Life Sciences" grant and Diamond Light Source, aims to build a dedicated electron diffractometer to investigate the potential of Mega-electron volt (MeV) electrons for the determination of molecular structures from nanometre sized crystals.

The HeXI instrument will leverage the increased penetration of MeV electrons and the high precision goniometry, cryo-sample transfer systems and sample preparation methods developed at Diamond to target crystal thicknesses between 300 nm and ~1 μm to determine the molecular structures of proteins and pharmacologically relevant molecules.

The ability to acquire high-fidelity sweep and serial diffraction data from ≤1-micron thick crystals will bridge the current crystal size gap between samples amenable to electron diffraction performed on commercial Transmission Electron Microscopes (TEMs) using <300 nm crystals and microfocus X-ray diffraction of >3 μm crystals at microfocus beamlines.