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## Ultrafast electron diffraction with adjustable camera length at high energies

*Monday, 20 May 2024 16:00 (2 hours)*

Ultrafast Electron Diffraction (UED) is a pioneering method for real-time observation of atomic-level structures. Recent advancements leverage relativistic electrons from radiofrequency (RF) guns to overcome space charge limitations, enhancing resolution. While perspectives may differ, an ongoing debate surrounds the optimal energy for a UED instrument. Our study contributes to this discussion by employing an 8.2 MeV electron beam and a compact post-sample magnetic optical system with small-gap Halbach permanent magnet quadrupoles. This system allows tunable magnification and improved reciprocal space resolution in a compact footprint, as demonstrated in simulations and experiments with a single crystal Au sample.

### Footnotes

### Funding Agency

### Paper preparation format

LaTeX

### Region represented

North America

**Primary author:** DENHAM, Paul (Particle Beam Physics Lab (PBPL))

**Co-authors:** FISHER, Andrew (Particle Beam Physics Lab (PBPL)); MUSUMECI, Pietro (University of California, Los Angeles); ENGLAND, Robert (SLAC National Accelerator Laboratory)

**Presenter:** DENHAM, Paul (Particle Beam Physics Lab (PBPL))

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