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RUEDI microscopy: solenoids or quadrupoles?

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RUEDI, the Relativistic Ultrafast Electron Diffraction and Imaging facility for the UK, is a planned facility that will deliver single-shot, time resolved, MeV electrons for imaging and ultrafast (~10 fs) diffraction. The facility naturally separates into two lines, both fed by the same RF gun. The first line is for microscopy and imaging whereas the second is dedicated to diffraction. Microscopy can be done in two ways, the first is by building a line with solenoid lenses and the second is by building the same line with quadrupole lenses. Here, we explore the advantages and disadvantages of both. Starting with a description of how the microscope is built using solenoids and extending this to look at various options with quadrupoles.

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Footnotes

I have read and accept the Privacy Policy Statement

Yes

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