Abstract Submitted
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Coincidence detection of correlated electron-ion pairs as a source of heralded ions[1] ANDREW MCCULLOCH, RORY SPEIRS, STEPHAN WISSENBERG, RUDY TIELEN, BENJAMIN SPARKES, ROBERT SCHOLTEN, University of Melbourne — We demonstrate a method for the deterministic production of single ions by exploiting the correlation between an electron and associated ion following ionization of atoms. Coincident detection and feedback in combination with Coulomb-driven particle selection allows for high-fidelity heralding of ions at a high repetition rate. Extension of the scheme beyond time-correlated to position/momentum-correlated feedback will provide a general and powerful means to optimize the ion beam brightness for the development of next-generation focused ion beam technologies.

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