

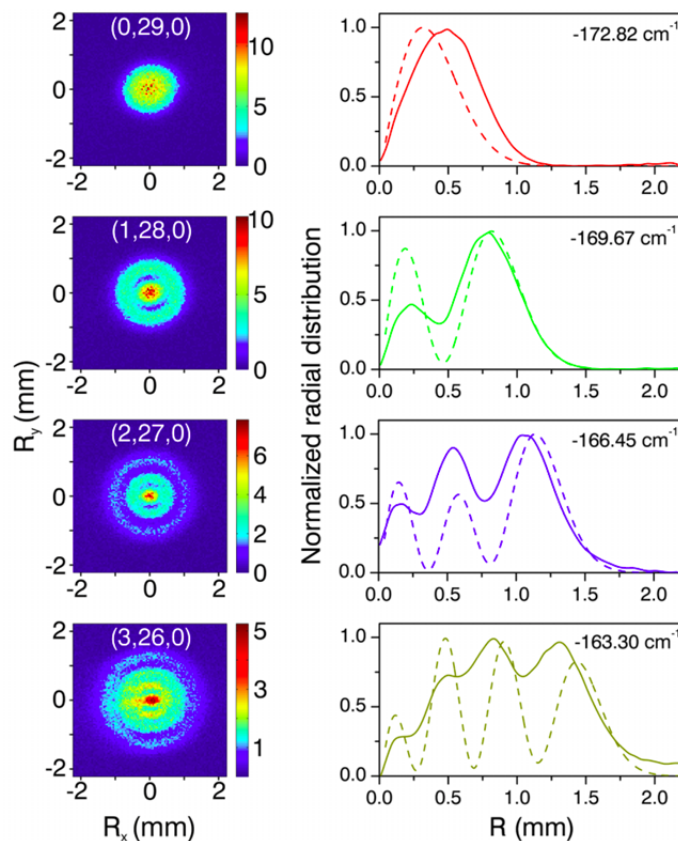
Strong field photoelectron holography

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The application of velocity map imaging for the detection of photoelectrons resulting from atomic and molecular ionization allows the observation of interferometric, and in some cases holographic structures that contain detailed information on the atomic and molecular targets from which the photoelectrons are extracted.

In my talk I will present several recent examples of the use of photoelectron velocity map imaging in experiments where atoms and molecules are exposed to strong optical and dc electric fields. I will discuss (i) observations of the nodal structure of Stark states of hydrogen and helium measured in a dc electric field, (ii) the appearance of holographic structures in mid-infrared strong-field ionization of metastable Xe atoms, (iii) the application of photoelectron holography towards the determination of (time-dependent) molecular structures, and (iv) the application of photoelectron holography in attosecond pump-probe experiments.



Nodal structure of 4 hydrogen Stark states, recorded by performing a photoelectron velocity map imaging experiment (A. Stodolna et al., Physical Review Letters 2013. 110(21): p. 213001.)