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Special issue on ultrafast electron and molecular dynamics

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Your invitation to submit. *Journal of Physics. B: Atomic Molecular and Optical Physics* (JPhysB) is delighted to announce a forthcoming special issue on ultrafast electron and molecular dynamics to appear in 2014, and invites you to submit a paper.

Within the last decade, a number of novel approaches have emerged, both experimental and theoretical, that allow the investigation of (time-resolved) molecular dynamics in novel ways not anticipated before. Experimentally, the introduction of novel light sources such as high-harmonic generation and XUV/x-ray free electron lasers, and the emergence of novel detection strategies, such as time-resolved electron/x-ray diffraction and the fully coincident detection of electrons and fragment ions in reaction microscopes, has significantly expanded the arsenal of available techniques, and has taken studies of molecular dynamics into new domains of spectroscopic, spatial and temporal resolution, the latter including first explorations into the attosecond domain. Along the way, particular types of molecular dynamics, such as dynamics around conical intersections, have gained an increased prominence, sparked by an emerging realization about the essential role that this dynamics plays in relaxation pathways in important bio-molecular systems. The progress on the theoretical side has been no less impressive. Novel generations of supercomputers and a series of novel computational strategies have allowed nearly exact calculations in small molecules, as well as highly successful approximate calculations in large, polyatomic molecules. Frequent and intensive collaborations involving both theory and experiment have been essential for the progress that has been accomplished.

The special issue 'Ultrafast electron and molecular dynamics' seeks to provide an overview of some of the most important developments in the field, while at the same time indicating how studies of (time-resolved) molecular dynamics are likely to evolve in the coming years.

You are invited to submit your article by 1 December 2013.