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Atomic and Molecular Processes in Strong Laser Fields

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Message from the Guest Editor

Thanks to advances in high-power femtosecond lasers, several decades ago, it became possible to study the processes of laser–matter interaction at field strengths approaching the binding force experienced by an electron inside atoms or molecules. In recent years, many experimental results have been obtained that expand our understanding of processes in strong fields and illuminate hitherto unknown aspects of them. In addition to their fundamental scientific significance, these advances have contributed to the expansion of experimental tools, including those for probing and controlling ultrafast processes in matter on timescales down to attoseconds.

This Special Issue aims to present the latest advances in the study of strong-field laser–matter interactions, including, among others, such topics as:

- Coulomb effects and Resonance effects;

- Multielectron effects;

- Nondipole effects;

- Time delays in ionization;

- Chirality sensitive strong-field laser–matter interactions;

- Ultrafast nonlinear spectroscopy;

- High harmonic spectroscopy;

- Quantum optical aspects of strong-field processes;