Special Issue

Cold and Rydberg Atoms for Quantum Technologies

Message from the Guest Editors

Cold atoms are reaching the stage of steering applications that go well beyond the study of the fundamental aspects of atomic and many-body physics. Rydberg atoms, owing to the quantum blockade effect, are compelling candidates for a next generation of quantum computers. Cold and Rydberg atoms are also becoming very appealing platforms for quantum simulation. Experimental realization of different condensed matter or high-energy models, as well as the replication of a plethora of astrophysical scenarios, are possible due to the development of cold atom-based emulators. The authors are encouraged to submit their original contributions in the advances of quantum technologies based on cold and ultracold atom platforms (BECs and cold atom traps), and Rydberg atoms and ultracold neutral plasmas. Topics of primary interest covered by this Special Issue include (but are not limited to) classical and quantum simulations in cold atoms and BECs, turbulence and instabilities in magneto-optical traps (MOT), quantum computing with Rydberg atoms, dynamics of Rydberg plasmas, quantum turbulence, quantum atomic impurities, and the Casimir–Polder effect in BECs.

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Message from the Editor-in-Chief

The scope of *Atoms* is deliberately wide and encompasses a large part of theoretical and experimental atomic,
molecular, nuclear, and chemical physics in order to encourage cross-disciplinary connections, while supporting the more traditional idea of individual subfields. The journal is also interested in papers concerning
the computation and compilation of data related to applications in the above areas. Details of experimental methods and codes are welcome. Your research is taken seriously and peer-reviewed with care. I encourage you
to contact me or any of the Editorial Board Members for further information.

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