Special Issue

Quantum Technologies in Cold Atomic Systems

Message from the Guest Editor

Cold atomic systems stand out as an exceptionally clean and versatile resource: their long coherence times, high controllability, and scalability enable the realization of engineered quantum matter and precision measurement schemes beyond the reach of conventional solid-state devices. Recently, advances in trapping techniques, synthetic dimensions, programmable interactions, and high-resolution detection have opened new avenues to design, probe, and exploit quantum states of matter with unprecedented accuracy. This Special Issue aims to collect original research and review articles addressing the theoretical and experimental progress at the intersection of ultracold atoms and quantum-enabled applications. We welcome contributions on, including but not limited to, quantum sensing and interferometry, quantum simulation of strongly correlated systems, synthetic gauge fields, topological and nonequilibrium phenomena, Rydberg platforms, quantum mixtures, dipolar gases, supersolidity, vortices and superfluid turbulence, and advanced control protocols for coherent quantum dynamics. Submissions exploring device-oriented cold-atom architectures are also encouraged.

Guest Editor

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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.

Editor-in-Chief

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