Special Issue

Statistical Mechanics of Lattice Gases

Message from the Guest Editors

Lattice gases in classical statistical mechanics is a fascinating and powerful tool for modeling physical systems. Its underlying simplicity presents major theoretical challenges in developing analytical solutions for the thermodynamic functions when particles are structured because their size, form, and composition and differ from ideal. Entropy dependence on density plays a determinant role in the phase behavior of complex lattice gases. The aim of this Special Issue is to present a number of reviewing and inspiring papers on these issues concerning the analytical treatment and simulation of equilibrium, phase behavior and kinetics of complex classical lattice gases either in classical as well as in quantum model systems. The topics of interest for this Special Issue include but are not limited to the following:

- Fundamentals of Lattice Gases

- Equilibrium Thermodynamics, Phase Transitions, and Critical Phenomena

- Transport Phenomena and Kinetics

- Complex Lattice Gases

- Quantum Lattice Gases

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