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Superfluidity in Patterned Quantum Phases

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Message from the Guest Editor

The well-known phenomenon of superfluidity is presently drawing a broad interest in condensed matter and statistical mechanics. Several new experiments, dealing mainly with degenerate quantum gases at low temperature, have in fact shown that gauge invariance may survive regardless of the presence of some other symmetries describing a long or quasi-long range order. Pattern formation and quasicrystal structures observed in cavities, realization of three-dimensional quantum droplets by tuning Feshbach resonances, and spin–orbit coupled Bose–Einstein condensates perhaps represent the most intriguing examples so far.

The aim of the present Special Issue is then to bring together all the expertise (topological and quantum field theories as well as advanced numerical methodologies) that have currently been accomplishing significant progress in the topic. Finally, we hope to facilitate the discussion and thus offer the widest possible knowledge on these special examples of quantum phases.



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Special Issue



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Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

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