Special Issue

Superfluidity in Patterned Quantum Phases

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.

Guest Editor

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