

Droplet-superfluid compounds in binary bosonic mixtures

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In this talk, I will review how quantum fluctuations in dipolar or binary mixtures of bosonic atoms with short-range interactions can lead to the formation of self-bound droplets. Emphasis will be on persistent currents in ring-trapped dipolar supersolids. For binary condensates with equal intra-component interactions but an unequal number of atoms in the two components, there is an excess part that cannot bind. A droplet then becomes amalgamated with a residual condensate. This results in particular rotational behavior that sheds new light on the coexistence of localization and superfluidity.