Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad – 500 046

Internal Webinar

Topological atom-optics with spinor Bose–Einstein condensates

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Singularities are ubiquitous in nature, from black holes and bacteria, to optics and atomic physics. We explore the rich physics of singularities in the multicomponent atomic wavefunction of an ultracold quantum gas. We experimentally realise and theoretically analyse atomic wavefunctions in the spin-1 and spin-2 atomic manifolds that host exotic vortex states, including spin-nematic and spin-orbit invariant vortex states that display non-trivial topologies. Many of these have appeared in the physics of optical wavefields; we develop an atom-optic analogy to bridge the two fields.

Tuesday, March 9th 2021

11:30 AM