



Functional Matter
Designer Materials and Quantum Technologies

Ein fakultätsübergreifendes Kooperationszentrum



Invitation

Magnetic Phenomena in a Spin 1 Bose Gas

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Abstract:

Ultracold atomic gases serve as platform for studies of quantum dynamics and many-body quantum phases. Among these ultracold atomic systems, gaseous spinor Bose Einstein condensates provide a compelling opportunity to access the dynamical properties of a magnetic superfluid and the myriad phases associated with its magnetization degree of freedom. We have studied such a gas in situ using a magnetization sensitive imaging method. We have identified a quantum phase transition in these gases between a paramagnetic and a ferromagnetic phase, and have studied the dynamics of a gas that is suddenly quenched across this transition. Magnetic dipole interactions are strongly relevant to the properties of a spin-1 rubidium quantum fluid. We have begun probing the consequence of these interactions for its equilibrium phase diagram as well as the evolution of spin textures in a spinor condensate.

Tuesday 22nd July
15h c.t.

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