

## **Magnon Dynamics and Thermodynamics**

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Quantum gases have the potential for letting us study simple realizations of phenomena that emerge also in more complicated and inscrutable systems. This potential is exhibited by the study of magnetic excitations in quantum gases, specifically of magnon excitations within magnetically ordered superfluids, which has direct analogues in research on magnetic solids and helium superfluids. We have developed methods for creating and imaging magnon excitations in a spinor Bose gas, and used these methods to observe coherent magnon optics, magnon-based thermometry and cooling, and magnon condensation. I will also provide a brief update on our studies of lattice-bound quantum gases.