

Spin Transport and Spin Drag in a Bose Gas

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Abstract

Control of spin currents is important for applications in the field of spintronics, and is also fundamentally interesting as such currents, and their decay mechanisms, can be different from charge currents. In an atomic spinor Bose gas spin currents decay because of interactions that cause drag, called spin drag, between different spin components. The rate of spin-current decay due to this process is enhanced upon approaching the critical temperature for Bose-Einstein condensation due to Bose enhancement of collisions. In this talk I will present theoretical predictions for, and results of measurements of, the spin-current relaxation rate in these systems.