

Thermal damping of spinful excitons in LaCoO₃: theory and experiment

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Lanthanum cobaltite is a much studied material with puzzling magnetic and transport properties. Recently, we have proposed a new description of it based on the idea of mobile exciton-like quasi-particles rather than the traditional picture of multiplet states bound to specific atoms. I will introduce this picture and discuss its consequences. Theoretical calculations as well as experimental RIXS (resonant inelastic x-ray scattering) data supporting this picture will be presented. I will also briefly discuss a theoretical tool, dynamical mean-field theory for hard-core bosons, which we have developed to describe a liquid of strongly interacting excitons necessary to capture the physics of LaCoO₃ at elevated temperatures.