

Abstract Submitted
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Correlation functions of dipolar gases at zero and non-zero temperatures CHRISTOPHER TICKNOR, ANDREW SYKES, Los Alamos National Laboratory — We study phase and density fluctuations in a quasi2D dipolar gas. We employ the Hartee-Fock-Bogoliubov (HFB) method to study finite temperature phase coherence. We use this method to study the Berezinskii-Kosterlitz-Thouless (BKT) transition. We contrast the results for dipolar-interactions to contact-interactions and compare our predictions against recent experiments. Additionally, we present analytic expressions for the correlation functions at zero temperature. We observe the formation of a roton in the excitation spectrum as one varies the ratio between 2D-confinement-width and correlation (healing) length. We study the effect of this roton on the few-body correlation functions in the system.

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