# Superfluidity in a System of Polarized Dipolar Bosons"

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We analyze the ground state of a two-dimensional quantum system of bosonic dipoles with their dipolar moments all polarized with an static field which forms an angle $\alpha$ with respect to the axis perpendicular to the plane containing the dipoles . The anisotropic character of the dipolar interaction allows the system to reach a stripe phase under certain conditions of density, $n$, and polarization angle, $\alpha$. We study this phase transition by means of the Static Structure Factor which shows that this phase has solid structure when we look in the direction in which the interaction is more repulsive but it is like a gas in the perpendicular direction (Stripe Phase).

Our recent calculations have shown that there are both superfluidity and condensate fraction in the bosonic stripe phase at zero temperature All the calculation have been performed using the variational and diffusion Monte Carlo methods (VMC and DMC) and also Path Integral ground state. Current work is focused on the study of the superfluid to normal fluid transition in bosonic systems at finite temperature, which is of the Kosterlitz-Thouless type, via the Path Integral Monte Carlo method (PIMC).

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