

## Active Crystal Moves Faster than Active Liquids?

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We propose a model of self-propelled Brownian particles with both local alignment interaction and repulsive Yukawa pair potential among particles. We observe both the transitions from liquid to solid phases and from isotropic to polar orders. In polar order phase, by decreasing the thermal noises, the liquid phase enters into the collective moving hexagonal crystal phase. Interestingly, we find that the particles in such crystal phase moves faster than particles in liquids phases with the same alignment strength and self-propelling force. We further calculate the force correlations and characterize the statistical property of particles' neighbor number and the fluctuations of Voronoi-tessellations. These measurements illustrate why self-propelled crystal moves faster than self-propelled liquids.