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Liquid Crystalline Ordering of Nano-rods in Polymer Nanocomposites[1] CHRIS KNOROWSKI, ALEX TRAVESSET, Iowa State University and Ames Lab — Polymer functionalization, i.e. attachment at the end polymer of functional groups with affinity for nanoparticles has been shown to be a very successful route for designing polymer nanocomposites. In this talk, we discuss the self-assembly of nano-rods with functionalized polymers and show a rich phase diagram with different ordered phases. We also show that there is a critical value of affinity (the functionalized end block-nanoparticle energy interaction) where the nanorods exhibit liquid crystalline ordering. We discuss experimental implications and further work.

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