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Equilibrium phase behavior of labile cross inkers in semiflexible networks DEVIN KACHAN, ALEX LEVINE, ROBIJN BRUINSMA, University of California, Los Angeles — The equilibrium phase behavior of cross linkers in a network of semiflexible filaments is complex. The binding of the cross linkers affects the transverse undulations of the filaments leading to a fluctuation-mediate attractive or Casimir interaction between them. If the cross linkers also provide constraint torques to enforce a preferred binding angle between filaments, the resulting networks can have complex spatial distributions of filaments and of cross linkers bound to those filaments. Simulations report both the formation lamellar network structures and the aggregation of cross-linkers in thermal equilibrium. In this talk, we explore the the Casimir interaction between cross linkers bound to a given filament. We report on the spatial correlations between cross linkers bound to a given filament due to their Casimir interactions, and compare these theoretical predictions to the results of Brownian dynamics based finite element simulations of the system. We conclude with a discussion of the implications of these results for the equilibrium structure of semiflexible filament networks with labile cross linkers.

Devin Kachan
University of California, Los Angeles

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