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Phase Behavior of Semi-Flexible Polymer Gels VENKATRAM H. PADMANABHAN, SANAT K. KUMAR, Columbia University — Histogram Reweighting Monte Carlo simulations were performed to obtain the sol-gel phase diagrams for a system of semi-flexible polymer chains in a cubic box with periodic boundary conditions. Our calculations stress the importance of patchiness – in its absence the systems form standard liquid crystalline phases. In contrast, for strong patch interactions, with decreasing temperature, the chains experience a local "arrest" in positions due to the interchain interactions, thus slowing down its dynamics. The physical aggregation of these chains is similar to that of Flory Type – III gels.

Venkatram H. Padmanabhan
Columbia University

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