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Phase structures of a series of bent-core mesogen jacketed liquid crystalline block polymers KISHORE TENNETI, Drexel University, XIAOFANG CHEN, Peking University, CHRISTOPHER LI, Drexel University, LIXIA RONG, BENJAMIN HSIAO, Stony Brook University, DEPARTMENT OF POLYMER SCIENCE AND ENGINEERING COLLABORATION[1], DEPARTMENT OF CHEMISTRY COLLABORATION[2] — We report the phase structures of a series of mesogen-jacketed liquid crystalline (LC) block copolymers (PS-b-PVC) with bent-core mesogens. Samples whose LC blocks contained shorter "tails" (PVC10) exhibited morphologies with curved interfaces. However, no significant LC ordering was observed in these samples. Samples containing LC blocks with longer tails (PVC14) exhibited lamellar morphologies with columnar hexagonal (FH) LC ordering at symmetric volume fractions. As the fPS decreased, the LC ordering changed from FH to columnar Nematic. We propose that at asymmetric volume fractions, curved interface formation disrupts the LC FH formation because of the incompatibility between the curved IMDS and the macromolecular columns of the LC block.

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