

Abstract Submitted  
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**Modeling helical polymer brushes using self-consistent field theory (SCFT)**<sup>1</sup> JYOTI MAHALIK, BOBBY SUMPTER, RAJEEV KUMAR, Oak Ridge National Lab — We investigate structure of helical polymer brushes in terms of segment density distribution and local helical ordering using SCFT. A flexible chain model with vector potential was used to model liquid crystalline-like ordering in the brushes. The effects of surface grafting density, polymer molecular weight and the solvent quality on the brush structure were investigated. For densely grafted polymer brushes or the brushes made up of high molecular weight polymers, immersed in good quality solvent, stronger orientational ordering was found near the edge of the brushes (i.e., far from the grafting surface). Furthermore, an increase in the orientational ordering near the grafted end was found with decrease in solvent quality or decrease in molecular weight and decrease in surface grafting density.

<sup>1</sup>Computer Science and Mathematics Division, Oak Ridge National Laboratory

Jyoti Mahalik  
Oak Ridge National Lab

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