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**Effects of dipolar interactions in polymer brushes**

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Effects of dipolar interactions on structure of polymer brushes are studied using a combination of semi-analytical theory, numerical simulations based on the self-consistent field theory (SCFT) and experiments. In this talk, insights obtained by studying brushes in the presence and absence of various polar solvents will be discussed. Possibility of vertical phase segregation in planar polymer brushes immersed in polar solvents and interpenetration as well as forces between opposing brushes will be discussed.