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Scaling of confined and interacting comb polymers CATHERINE YEH, PHILIP PINCUS, University of California, Santa Barbara — We study the scaling of polymer chains grafted to a line, i.e. a 1-D brush or comb polymer, on a repulsive plane in good solvent using classical molecular dynamics. The grafting density is large enough to cause chain stretching. The confined comb geometry is motivated by intermediate filaments where the unstructured monomer c-termini form annular rings that can be modeled as a confined comb bent into a ring. We find that the scaling of brush size as a function of the number of monomers per chain is the same for a comb with and without confinement by a repulsive plane. We also consider the transition of a line of parallel interacting combs to the planar brush geometry as they are compressed from isolated combs; we present results for the dependence of brush height on the distance between combs.

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