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Loop polymer brushes from polymer single crystals TIAN ZHOU, CHRISTOPHER LI, Drexel Univ — Loop polymer brushes represent a category of polymer brushes with both chain ends being tethered to a surface or interface with sufficiently high density. Due to this morphological difference, loop brushes exhibit distinct properties compared with traditional polymer brushes with single chain end being tethered. In our study, α, ω-functionalized polycaprolactone (PCL) single crystals were prepared as templates for polymer brush synthesis. By carefully controlling crystallization condition and immobilization, looped polymer brushes were successfully prepared. Comprehensive studies on the morphology and physical properties of these polymer brushes were carried out using Atomic Force Microscopy and FTIR. Advantages of using this method include exclusive loop morphology, high grafting density, controlled tethering sites and tunable loop size.

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