

Executive Summary

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Project “Single-Molecule Mechanics of Dendronized Polymers”

This project focused on synthesis of functionalized dendronized polymers, which was achieved up to 6th generation. We consider the synthesis of this generation as a significant breakthrough. Mechanical properties of dendronized polymers were further studied with atomic force microscopy. One observes a strong variation of the mechanical response with generation and solution properties. The interaction of these polymers with surfaces could be tuned by appropriate functionalization of the substrate as well as by the solution composition. Since the mechanical properties of dendronized polymers can be modified through their generations and the solution composition, we suspect that such polymers will become useful building blocks for single-molecule machines, especially as nanoactuators, or molecular motors.