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Abstract for an Invited Paper
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Surface engineering with soft matter

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In my presentation, I will outline several novel strategies facilitating the generation of functional polymeric surfaces. In particular, I will present and discuss simple methodologies leading to the formation of complex surface assemblies of surface-tethered polymers with continuous variation of physico- chemical properties (e.g., wettability, molecular weight, grafting density, composition). I will illustrate how these grafted gradient surfaces can be utilized to control the spatial distribution of adsorbates, such as nanoparticles and proteins, and administer the proliferation of living cells on the surfaces. Furthermore, I will illustrate how flexible elastomeric networks can be utilized to tailor the grafting density of oligomers or polymers, create responsive ("smart") surfaces, and generate topographically corrugated surfaces comprising multidimensional cascades of wrinkles. Application of these wrinkled surfaces for material assembly will also be demonstrated.