A new surface-grafting platform technology for polymer-functionalized materials interfaces.

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**Project outline:**
Modifying materials interfaces with well-defined polymer coatings has potential application including improving biomaterials, biosensing, prevention of corrosion or fouling, and many others. Over the past decade, surface-initiated atom transfer radical polymerisation (SI-ATRP) has emerged as a versatile method for customizing the surface properties of materials with well-defined polymer brushes. The interfacial properties of the coating are readily tunable using this procedure allowing one to modify the thickness, density, and energetic properties of the interface.

One of the limitations of growing polymer brushes from materials surfaces is that multistep attachment procedures are used to first derivatize and then functionalize a variety of different bulk materials. The goal of this project is to develop a surface modification platform technology where many different materials could be modified with well-defined polymer interfaces simply and efficiently. Potential students will possess skill or knowledge in surface-initiated controlled grafting methods (such as ATRP) and know basic surface analytical techniques.

**Research Area:** Materials science, interface science, macromolecular chemistry, surface-initiated grafting, surface analytical techniques

**References:**
