

Manipulating Self-Assembly of Plasmonic Nanostructures via Functional Polymers

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Advanced plasmonic nanoassemblies mediated by functional polymers are demonstrated: plasmonic nanoparticles are held together through either covalent or noncovalent interactions from polymer linkers. Polymer engineering gives precise structural control including geometry and interparticle distance. Plasmonic nanoparticles can be arranged into rings,¹ core–satellite-like structures,^{2,3} chains, and even a great series of polyhedron (figure 1). We expect these advanced nanostructures to have unique (optical) properties based on their group geometry.⁴

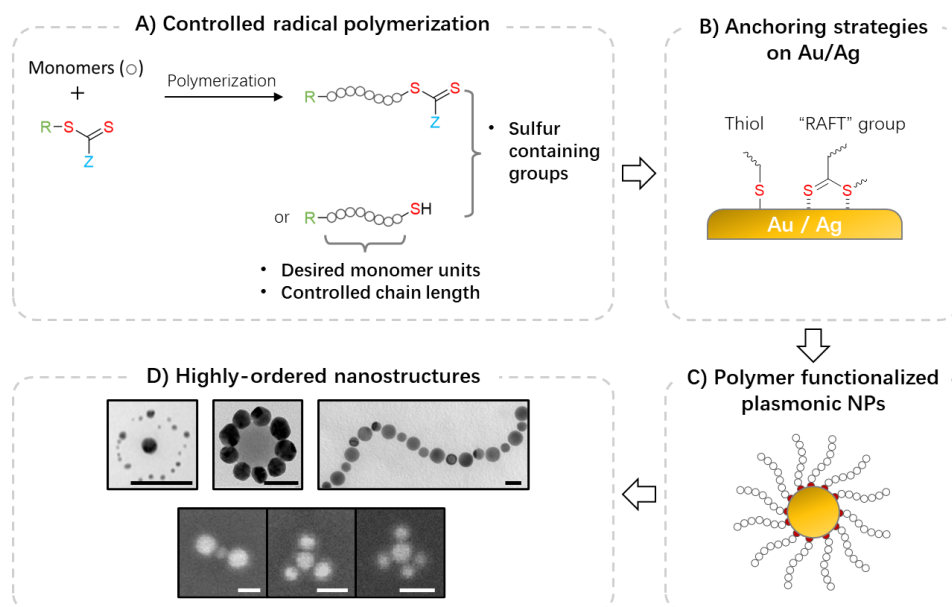


Figure 1. (A–C) Schematic illustrations of (A) controlled radical polymerization to create designed polymers with sulfur-containing end-groups, (B) Anchoring strategies of polymer on Au/Ag surfaces, and (C) polymer functionalized plasmonic nanoparticles. (D) Electron microscopy of various nanostructures manipulated by functional polymers. scale bar: 50 nm.

References:

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