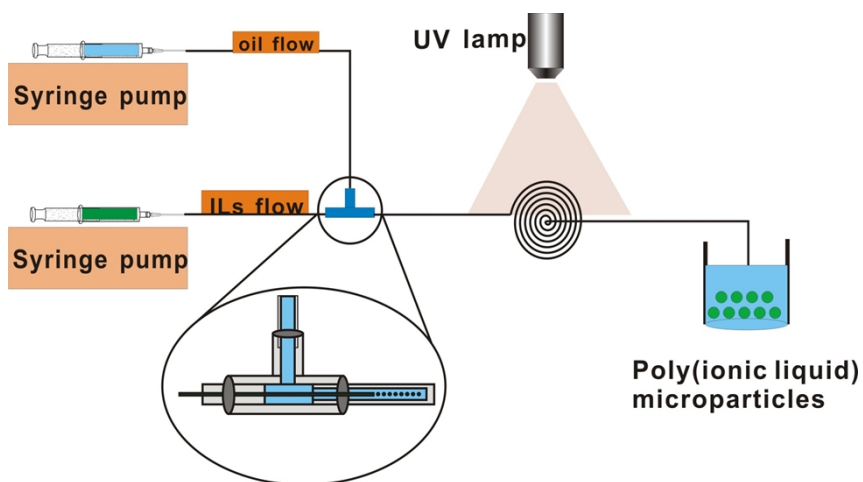
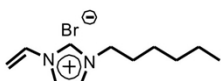


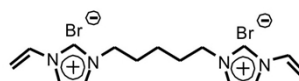
Supporting Information



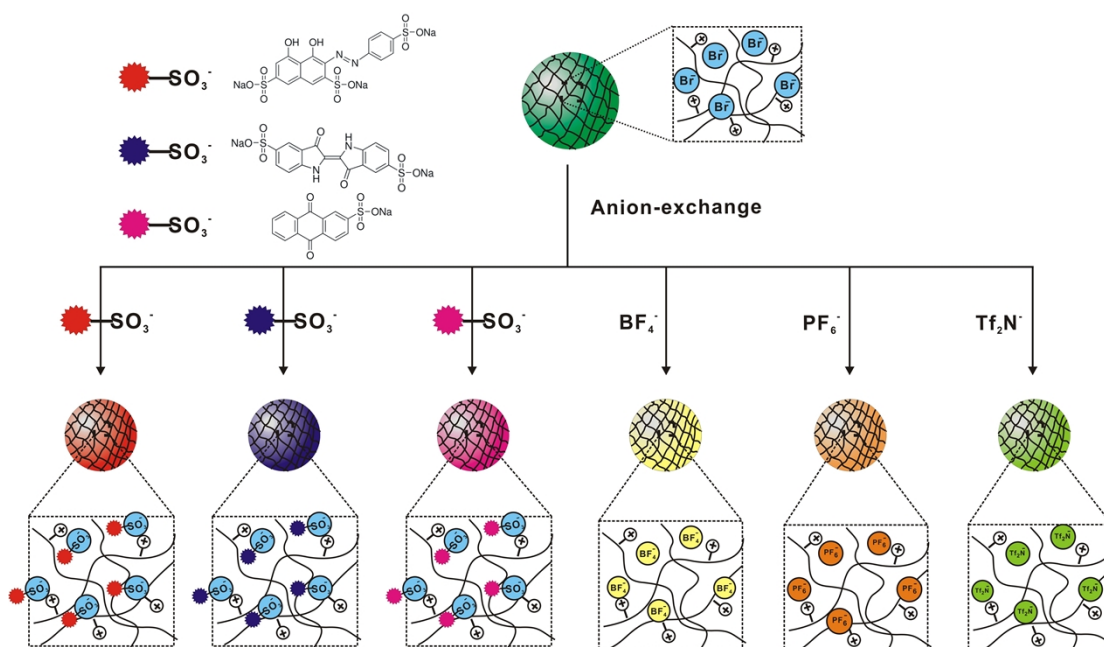
Ionic Liquid Monomer:



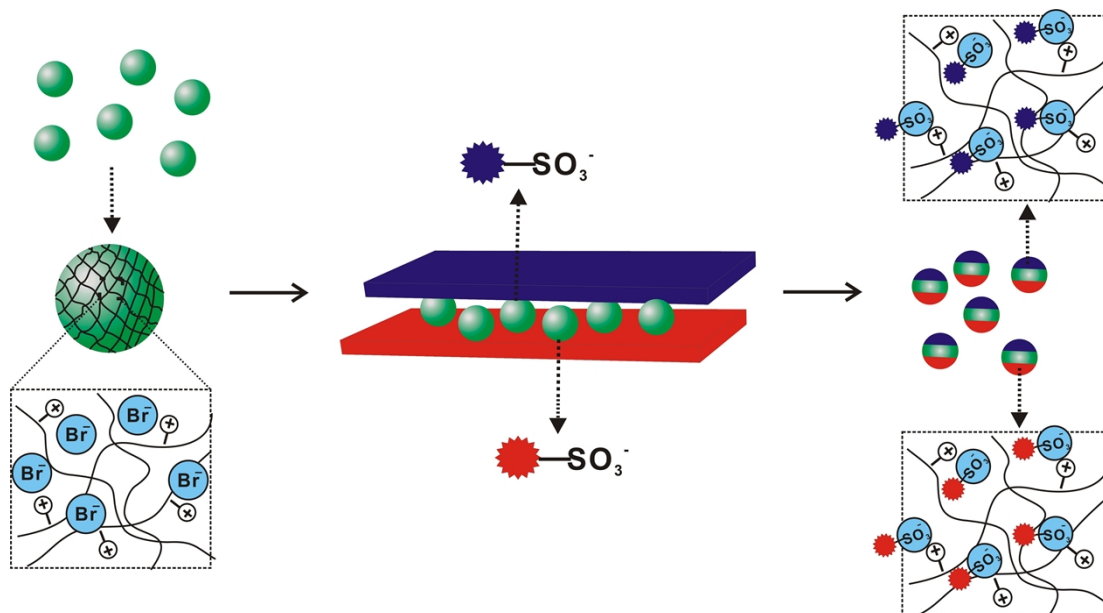
Cross-Linker:



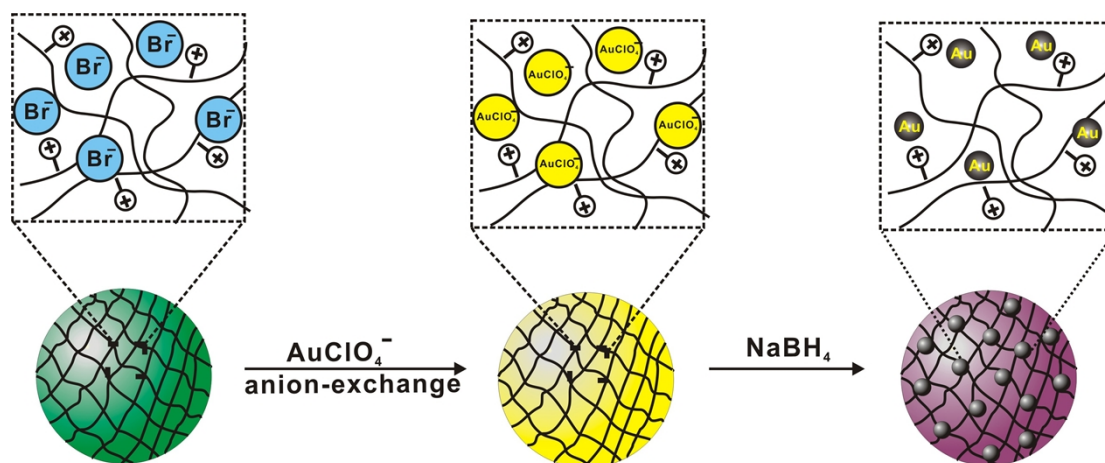
Scheme S1: Schematic illustration of the microfluidic synthesis of the monodisperse PIL microgels and the chemical structures of the used ionic liquid monomer and cross-linker.



Scheme S2: Schematic illustration of the counteranion-exchange reaction of the prepared PIL microgels.



Scheme S3: Schematic illustration of the preparation of patchy microparticles by using a “sandwich” microcontact printing (μ CP) method.



Scheme S4: Schematic representation of the preparation of Au-PIL hybrid microgels..

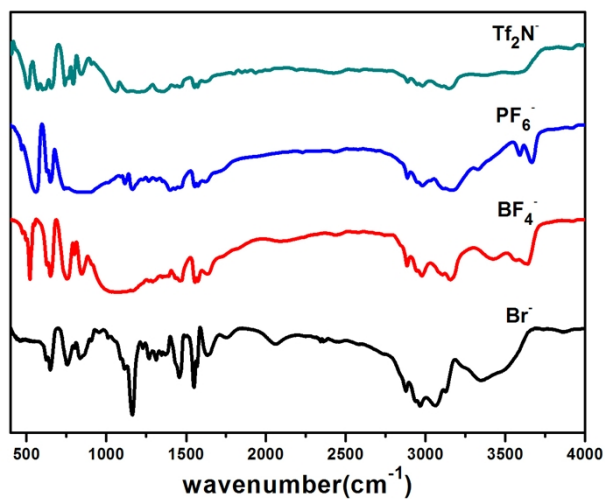


Figure S1. FTIR spectra of the fabricated PIL microgels before and after the exposure to different anion aqueous solutions.

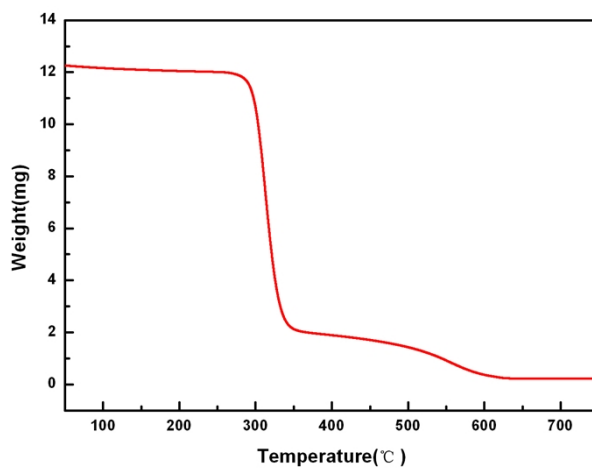


Figure S2. TGA data of the Au-PIL hybrid microgels with a heating rate 5K/min in a flow of air.

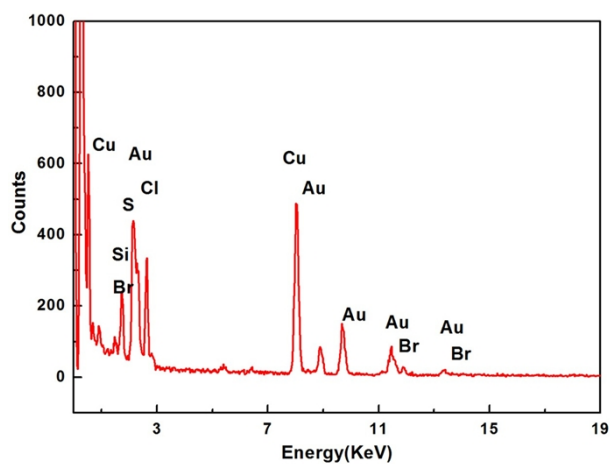


Figure S3: EDX spectrum of Au-PIL hybrid microgels.