Assembly and Interfacial Catalysis of Microgel Particles at Fluid Interfaces

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The use of microgel particles for stabilizing emulsions have captured increasing attention across a wide range of disciplines in the past decades. In this talk, I will first demonstrate that microgel particles can be simultaneously used to stabilize an emulsion, encapsulate enzymes and catalyze reactions at the water/oil interface. I will then show a responsive emulsion, stabilized by soft protein nanoparticles that can be unprecedentedly triggered by simply changing the pH over 100 cycles. These protein nanoparticles integrated with gold nanoclusters exhibit excellent interfacial activity and cyclability, not only in aqueous solution, but also in complicated seawater environments, thus open interesting avenues for establishing green and sustainable platforms with various recyclable catalysts and separation products.