

Webinar Friday, April 22, 11:10 am

Zoom: <https://zoom.us/j/92923479872?pwd=anA1R1FFdmYyZGMzN053QnBMNktZQT09>

Host: Kelly Burke

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Using Fluid-Fluid Interfaces and Interfacial Polymerizations to Architect Better Hybrid Materials

Abstract:

Encapsulation provides an attractive route for overcoming the cumbersome handling of viscous liquids or accommodating solid-liquid phase changing materials. This presentation will highlight recent work from the Pentzer group in using Pickering emulsions stabilized by 2D particles to template the encapsulation of “active” liquids, including ionic liquids (ILs), phase change materials (PCMs), and polyalpha olefins (PAOs). Graphene oxide (GO) nanosheets are used to stabilize immiscible liquid droplets in water, and alkylated GO nanosheets are used to stabilize non-aqueous emulsions. Interfacial polymerization leads to the formation of a polymer composite capsule shell around a core of the discontinuous liquid. The benefits of these tailored hybrid structures, as well as current limitations, will be discussed, highlighting the use of other nanosheets as surfactants (i.e., transition metal oxides and transition metal carbides (MXenes)), the integration of dynamic covalent bonds in the shell, and the application of the capsules in gas uptake and solvent remediation.

