

Importance of Microscopic Details to Understand Colloidal Dispersions

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In-depth knowledge on colloidal interactions is very critical to understand natural and man-made materials/processes involving various structured fluids such as colloids, micelles, and polymers. While the classical Derjaguin-Landau-Verwey-Overbeek (DLVO) theory has been a cornerstone to understand colloidal interactions, it suffers from "details" associated with chemical physics at small scales. Using the solution structure at solid-liquid interfaces as an example for such details, this talk will show how we can obtain better understanding for collective scale phenomena (e.g., oriented attachment) by coupling those details based on particle interactions.