

Abstract Submitted
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Dynamics of non-spherical colloidal particles near and at oil-water interfaces ANNA WANG, THOMAS G. DIMIDUK, JEROME FUNG, KUNDAN CHAUDHARY, JENNIFER A. LEWIS, Harvard University, SEPIDEH RAZAVI, ILONA KRETZSCHMAR, The City College of New York, CUNY, VINOOTHAN N. MANOHARAN, Harvard University — Whereas much is known about how spherical colloidal particles interact with and at oil-water interfaces, not much is known about their non-spherical counterparts. The rotation of non-spherically symmetric particles adds extra degrees of freedom to how such particles interact with each other and the interface, so to study their three-dimensional dynamics we must first be able to image the rotation which has so far only been possible in viscous fluids or for particles with large aspect ratios. Here we track both the three-dimensional translation and the rotation of non-spherical colloidal particles at high speeds using the discrete dipole approximation in conjunction with digital holographic microscopy. We study the dynamics of such particles at an oil-water interface to determine interactions and dynamics prior to or after attachment. We aim to connect these measurements to the formation and stability of Pickering emulsions.

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