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Capillary rafts and their destabilization SUZIE PROTIERE, CNRS/IJLRA-Universite Paris 6, MANOUK ABKARIAN, CNRS/LCVN-Universite Montpellier 2, JEFFREY ARISTOFF, HOWARD STONE, MAE-Princeton University — Small objects trapped at an interface are very common in Nature (insects walking on water, ant rafts, bubbles or pollen at the water-air interface, membranes...) and are found in many multiphase industrial processes. The study of such particle-laden interfaces is therefore of practical as well as fundamental importance. Here we report experiments on the self-assembly of spherical particles into capillary rafts at an oil-water interface and elucidate how such rafts sink. We characterize different types of sinking behavior and show that it is possible to obtain “armored droplets,” whereby the sinking oil is encapsulated within a shell of particles.

Suzie Protiere
CNRS/IJLRA-Universite Paris 6

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