

Abstract Submitted
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Real Time Electron Microscope Imaging of Nanoparticle Motion Induced by a Moving Contact Line¹ JOSEPH GROGAN, HAIM BAU, University of Pennsylvania — With the high resolution of the electron microscope, we imaged the interactions between receding and advancing contact lines and surface-bound nanoparticles. The experiments were carried out with a custom-made liquid cell, dubbed the nanoaquarium. The nanoaquarium seals a thin liquid layer between two thin, electron-transparent membranes, and allows one to image processes in liquid media with electrons. We observe that the nanoparticles are ejected in the wake of the receding contact line, and pushed by the advancing contact line. A simple mathematical model that accounts for surface tension and disjoining pressure effects is constructed to interpret this curious phenomenon.

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