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Forming adjustable monolayers via particle assembly at electrified liquid-fluid interfaces NADINE AUBRY, Carnegie Mellon University, PUSHPENDRA SINGH, New Jersey Institute of Technology, MUHAMMAD JANJUA, SAI NUDURUPATI, Lake Superior State University — The application of an external electric field leads to the assembly of particles at a liquid-fluid interface into monolayers which display long-range order and whose spacing between the particles can be adjusted by varying the strength and/or frequency of the electric field. In contrast to capillarity induced self-assembly, the technique permits the assembly of *small* particles, i.e., submicron to nano sized particles. This is possible because (i) the particles experience electric field induced capillary forces and (ii) the associated energy of such forces is greater than kT. The adjustment of the lattice spacing, and therefore the control of the mechanical, thermal, optical properties of the monolayer, is achieved through a judicious combination of attractive capillary forces and repulsive particle-particle interactions which is realized in practice by varying the electric field.

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