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**Self-assembling particles of various shapes and sizes into adjustable monolayers at liquid-fluid interfaces** SAI NUDURUPATI, MUHAMMAD JANJUA, Lake Superior State University, NADINE AUBRY, Carnegie Mellon University, PUSHPENDRA SINGH, New Jersey Institute of Technology — Capillarity induced self-assembly of particles trapped at a fluid-liquid interface has been widely used to fabricate self-assembled monolayers. Capillarity alone, however, cannot be used to form ultra-thin membranes, made of submicron or nanosized particles, or membranes with a non-close packed structure whose properties could be adjusted. To address these shortcomings, we apply an external electric field which generates electric field induced capillary forces which are non-negligible even on very small particles for which capillary forces based on their buoyant weight alone are nearly zero. In addition, particles experience repulsive electric forces which lead to expanded lattices whose constant can be adjusted by varying the strength and/or frequency of the applied electric field. In addition to forces, torques are involved in the case of non-spherical particles which then reorient themselves as they self-assemble.

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