

Abstract Submitted
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Molecular-like hierarchical self-assembly of monolayers of mixtures of particles¹ P. SINGH, M. HOSSIAN, S. GURUPATHAM, K. SHAH, A. AMAH, M. JANJUA, S. NUDURUPATI, I. FISCHER, NJIT, N. AUBRY, North-eastern University — We present a technique that uses an externally applied electric field to self-assemble monolayers of mixtures of particles into molecular-like hierarchical arrangements on fluid-liquid interfaces. The arrangements consist of composite particles (analogous to molecules) which are arranged in a pattern. The structure of a composite particle depends on factors such as the relative sizes of the particles and their polarizabilities, and the electric field intensity. If the particles sizes differ by a factor of two or more, the composite particle has a larger particle at its core and several smaller particles forming a ring around it. The number of particles in the ring and the spacing between the composite particles depends on their polarizabilities and the electric field intensity. Approximately same sized particles form chains (analogous to polymeric molecules) in which positively and negatively polarized particles alternate.

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