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Assembly of functionalized dicomponent nanorods at liquid-liquid and -air interfaces BOKYUNG KIM, University of Massachusetts Amherst, SOOJIN PARK, DIAN CHEN, THOMAS MCCARTHY, THOMAS RUSSELL — Nanoporous templates are used to fabricate nanorods which have attracted significant interest for the fabrication of functional materials with interesting optical, electrical and magnetic properties due to their shape. We investigated a method for preparing well-ordered Anodized Aluminum Oxide (AAO) template using block copolymer micelles to transfer block copolymer patterns to the surface of aluminum as a mask during RIE. Electrochemical deposition was used to deposit Au blocks and poly(pyrrole) blocks into AAO templates to prepare dicomponent nanorods. Varying the diameter and length of them can be easily controlled by the hole diameter of AAO templates and the electroplating time. By taking advantage of the different properties and functions of the individual components for offering additional degrees of freedom in self-assembly, their distinct surface chemistry was prepared. At liquid-liquid and –air interfaces, functionalized nanorods were distinctly self-assembled to adjust the interfacial interactions and stabilize two phases.

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