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Assembly of Graphene Oxide at Water/Oil Interfaces: Tessellated Nanotiles THOMAS RUSSELL, ZHIWEI SUN, TAO FENG, University of Massachusetts Amherst — Graphene oxide (GO) was found to segregate at water/toluene interface when attractive polymer ligands, e.g. poly(styrene-b-2-vinylpyridine) or amine terminated polystyrene, were added to toluene phase. Functional groups on polymer ligand would interact with carboxyl groups on the GO through hydrogen bonding/electrostatic interactions. GO nanosheets migrated to the water/toluene interfaces, aligned parallel to the interface and occupied the free space at interface. A jammed GO thin film was obtained when the interfacial area was compressed. TEM images showed that GO nanosheets, like nanotiles, occupied the whole area of the interface and separated the water and toluene phase effectively.

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