

Abstract Submitted  
for the MAR15 Meeting of  
The American Physical Society

**Curvature coupling influences lipid phases and morphologies on substrates** JUKKA MÄÄTTÄ, SAMPISA VIERROS, MARIA SAMMALKORPI, Aalto Univ — The shape of a lipid aggregate contributes to many crucial biological processes like motility, fission, fusion and trafficking. At a molecular scale, the shapes lipids self-assemble in aqueous solution are coupled to molecular spontaneous curvature. At interfaces, the interface imposes an additional external constraint, which influences the assembled morphology. In this study, we examine the coupling between molecular spontaneous curvature and imposed external curvature in self-assembling lipid systems via molecular simulations. We map the adsorption morphologies for lipids of varying curvature as a function of substrate characteristics; the external curvature imposed by the substrate acts as a control factor in determining the morphology. In two-component systems external curvature introduced by the substrate can result in phase separation. We compare and connect our findings with experimental findings on lipid adhesion and adsorption morphologies.

Jukka Määttä  
Aalto Univ

Date submitted: 12 Nov 2014

Electronic form version 1.4