

Abstract Submitted  
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**Cluster Formation and Corralling Effect in Two Dimensional Binary Mixtures**<sup>1</sup> DONGSHENG ZHANG, MARCELO CARIGNANO, IGAL SZLEIFER, Department of Chemistry, 560 Oval Dr., Purdue University, West Lafayette, IN 47907-1393 — We study the formation of ordered clusters of nanoparticles in binary mixtures in two dimensions using Monte Carlo simulations. The necessary conditions for the formation of highly ordered clusters are: the size mismatch between the two components and a long-range soft repulsions between the large particles. The degree of order of the clusters depends on the concentration of large particles. We show the conditions upon which compression of the layer induces squeezing out of the large particles from the interface. Our findings explain recent experimental observations on poloxamer-lipid mixtures and provide guidelines for how to form ordered clusters of nanoparticles in two dimensions.

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Marcelo Carignano  
Department of Chemistry, 560 Oval Dr.,  
Purdue University, West Lafayette, IN 47907-1393

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