

Abstract Submitted  
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**Ordered ferrofluidic assemblies in polymer film formed by magnetically induced polymer-solvent phase separation** NATARAJ SANNA KOTRAPPAVAR, MYUNGHWAN BYUN, PAUL ZAVAL-REVIERA, KEVIN CHONNON, Biological and Soft Sciences Sector, Cavendish Laboratory, University of Cambridge, Cambridge CB3 0HE, UK, SHAHEEN S.A. AL-MUHTASEB, Department of Chemical Engineering, Qatar University, P.O. Box 2713, Doha, Qatar, EASAN SIVANIAH, Biological and Soft Sciences Sector, Cavendish Laboratory, University of Cambridge, Cambridge CB3 0HE, UK, BIOLOGICAL AND SOFT SCIENCES SECTOR, CAVENDISH LABORATORY, UNIVERSITY OF CAMBRIDGE, CAMBRIDGE CB3 0H TEAM, DEPARTMENT OF CHEMICAL ENGINEERING, QATAR UNIVERSITY, P.O. BOX 2713, DOHA, QATAR COLLABORATION — Tri-block copolymer has been used as nonferrofluid to generate permanent magnetic structures with controlled dimension and architecture in a partially miscible ferrofluid-nonferrofluid mixture under the influence of a perpendicular magnetic field. The nature of the resultant assemblies was strongly dependent on the magnetic field and concentration of ferro/nonferrofluidic systems. These ordered cluster assemblies in a polymer film that can be used either directly, in applications such as membrane, or subsequently as a template for the formation of other nanostructured materials. The origin of the permanent structures, which have characteristic lateral dimensions ranging from 5  $\mu\text{m}$  to submicron range, is the repartitioning of the ferrofluid carrier solvent into the nonferrofluid polymeric phase.

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