

Pattern Formation in the Membranes of Bicontinuous Cubic Phases Based on Star-Polyphiles

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Bicontinuous cubic phases are of widespread interest as they are thought to play an important role in nature, and have found a large variety of applications in fields including drug delivery, contrast agents, food science, biosensors, and nanomedicine.

Here we present bicontinuous cubic phases in which the hydrophobic membrane is locally de-mixed into hydrocarbon and fluorocarbon domains [1], whereby the hydrocarbon fluorocarbon patterns can be tuned based on composition.

The cubic phase is self-assembled from a mixture of double chain surfactants and star-polyphiles [2]. The latter are small molecules consisting of 3 mutually immiscible chains attached to a common center; a hydrocarbon, fluorocarbon and a water soluble oligo-ethylene glycol chain [3,4].

The focus of this presentation will be on detailed SANS contrast variation data in comparison to scattering simulations.

[1] de Campo, L.; Castle, T.; Hyde, S. T., *Interface focus*, 7 (4), 20160130 (2017)

[2] Hyde S.T., de Campo L., Oguey Ch., *Soft Matter*, 5, 2782-2794 (2009)

[3] de Campo, L.; Moghaddam, M. J.; Varslot, T.; Kirby, N.; Mittelbach, R.; Sawkins, T.; Hyde, S. T., *Chem. Mat*, 27 (3), 857-866 (2015)

[4] de Campo L., Varslot T., Moghaddam M., Kirkensgaard J., Mortensen K., Hyde S.T., *PCCP*, 13(8), 3139-3152 (2011)

Level of Expertise

Expert

Do you wish to take part in the poster slam

No

Travel Funding

No

Speakers Gender

Female

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