Contribution ID: **84** Type: **Invited Speaker / Conférencier invité**

Competition Between Phase Separation and Crystallization in Attractive Colloids

Wednesday 18 June 2014 09:15 (30 minutes)

This presentation will focus on results from recent experiments on earth and on the International Space Station investigating the interplay between phase separation and crystallization in samples prepared in the three-phase region (gas-liquid-crystal) of the phase diagram of a colloid-polymer mixture. On earth, our samples first separate into a colloid-rich phase and a colloid-poor phase, with crystals forming in the colloid-rich phase. The denser phases sediment as expected. In microgravity, photographic images obtained in the BCAT-5 experiment reveal phase separation with crystal formation in the denser phase, where the phase separation continues normally until the dominant length scale is about 25% of the cell thickness, at which point both phase separation and crystal growth are arrested before macroscopic phase separation can occur. We propose that this arrest occurs because the surface tension is not sufficient to overcome the stiffness of the crystalline network that forms in the liquid phase. Supported by the Canadian Space Agency and NSERC.

Author: FRISKEN, Barbara (S)

Co-authors: Dr BAILEY, Arthur (SFU); Dr ESPINOSA, Gabriel (Universidad Michoacana de San Nicola´s de Hidalgo); Dr SABIN, Juan (University of Santiago de Compostela)

Presenter: FRISKEN, Barbara (S)

Session Classification: (W1-5) Biophysics/Soft Condensed Matter III: Phase Behaviour and Kinetics - DCMMP-DMBP / Biophysique et matière condensée molle III: Comportement et cinétique de phase - DPMCM-DPMB

Track Classification: Condensed Matter and Materials Physics / Physique de la matière condensée et matériaux (DCMMP-DPMCM)