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**Coarsening Dynamics of Inclusions and Thermocapillary Phenomena in Smectic Liquid Crystal Bubbles** CHEOL PARK, JOSEPH MACLENNAN, MATTHEW GLASER, NOEL CLARK, University of Colorado, TORSTEN TRITTEL, ALEXEY EREMIN, RALF STANNARIUS, University of Magdeburg, PADETHA TIN, NANCY HALL, NASA Glenn Research Center — The Observation and Analysis of Smectic Islands in Space (OASIS) project comprises a series of experiments that probe interfacial and hydrodynamic behavior of thin spherical-bubbles of smectic liquid crystal in microgravity. Smectic films are the thinnest known stable condensed phase structures, making them ideal for studies of two-dimensional (2D) coarsening dynamics and thermocapillary phenomena in microgravity. The OASIS flight hardware was launched on SpaceX-6 in April 2015 and experiments were carried out on the International Space Station using four different smectic A and C liquid crystal materials in separate sample chambers. We will describe the behavior of collective island dynamics on the bubbles, including temperature gradient-induced themomigration, and the diffusion and coalescence-driven coarsening dynamics of island emulsions in microgravity. This work was supported by NASA Grant No. NNX-13AQ81G, and NSF MRSEC Grants No. DMR-0820579 and DMR-1420736.

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