Contribution ID: **10** Type: **Oral**

Soft matter thin films under pressure: a morphological investigation under Grazing Incidence Neutron Scattering

Wednesday, 17 July 2024 14:50 (20 minutes)

Using a custom-designed pressure cell, we tune hydrostatic pressure and combine Grazing Incidence Small Angle Neutron Scattering (GISANS) with specular and off-specular reflectivity under pressure (P) to probe morphologies of soft matter layers immersed in heavy water at P = 1 bar and P = 800 bar. Our results reveal nanostructural rearrangements upon P-increase and chemical composition dependencies for strongly segregated (hydrophilic) PDMAEMA / (hydrophobic) POFPMA homopolymer brush mixtures vs. weakly segregated PDMAEMA/PMMA homopolymer brush mixtures anchored on Si substrate.

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Thin films and interfaces in soft matter and materials science

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Session Classification: SAGA session