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【703】Exploring Microfluidic-Small Angle Neutron Scattering for Soft Matter Physics

Tuesday 10 September 2024 14:30 (15 minutes)

Our contribution to non-equilibrium soft matter physics involves developing an in situ method for studying structural changes under flow, impacting materials properties and processing. Our research spans various model systems, from wormlike micelles to 3D printing ink. We tackle challenges in flow studies with microfluidic-small-angle neutron scattering (microfluidic-SANS), enhancing visibility and control. Using selective laser-induced etching (SLE), we create neutron-transparent fused silica microchannels in parallel, increasing sample volume exposure while maintaining the resolution. We explore techniques to reduce reflection signals and present in situ contrast matching and flow mapping experiments. This work advances understanding of soft matter structures under flow, with applications in pharmaceuticals, cosmetics, and 3D printing.

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