Abstract Submitted
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Microfluidics of ordered fluids ANUPAM SENGUPTA, Max Planck Institute for Dynamics and Self Organization — Flow of ordered fluids (e.g. liquid crystals) is inherently complex due to the coupling between the flow and the long-range orientational order. Experiments carried out with nematic liquid crystals at micro scales further reveal the influence of surface properties on the static and dynamic outcomes. Microfluidics provide a convenient platform to tune one or more of the above competing components, and explore the resulting equilibrium states. The delicate but intricate balance between the viscous, elastic and surface forces was consequently used to devise optofluidic and micro-scale-transport applications. On one hand the novel applications complement the conventional microfluidic capabilities, and on the other hand, broaden the reach of *isotropic* microfluidics by offering competitive advantages. Standard microfluidic techniques and a combination of polarizing optical microscopy, fluorescence confocal polarizing microscopy and particle tracking methods were employed for the investigations.

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