

Abstract Submitted  
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**Flow of anisotropic and isotropic objects in quasi-twodimensional fluids**<sup>1</sup> RALF STANNARIUS, ALEXEY EREMIN, SARAH DÖLLE, KIRSTEN HARTH, CHRISTOPH KLOPP, Otto von Guericke University, Magdeburg — We study the motion of microscopic objects in very thin freely suspended smectic liquid-crystal films. The aspect ratios of these films are of the order of  $1:10^6$ . Hydrodynamic motion is restricted to the film plane. Thus such films represent quasi-twodimensional fluids. Not only do they provide the opportunity to test theoretical models on mobilities in thin membranes, they also allow access to viscosity parameters of in-plane isotropic (smectic A) and anisotropic (smectic C) fluids. Combinations of these environments with isotropic and anisotropic geometries of inclusions provide rich information about interactions of rotational and translational particle motions, the anchoring-induced and flow-induced alignments of the embedding fluid, and interactions of particles via flow and director fields. Thermal diffusion in horizontal films as well as controlled effective gravity in tilted films are explored.

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