

***Simple fluids in slit micropore:
from local transport properties to shear induced swelling***

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Using extensive molecular dynamics simulations on simple fluids confined in a slit micropore, we have studied the impact of the confinement on various dynamic properties. In particular we will show how the local variations of the transport properties of the confined fluid (diffusion [1], viscosity [2]), induced by density inhomogeneities, may be described by a simple local average density model [3]. In addition, we will discuss the coupling that may occur between shear and swelling of such highly confined systems [4].

[1] H. Hoang, G. Galliero, J. Chem. Phys. **136**, 184702 (2012)

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[3] I. Bitsanis, T.K Vanderlick, M. Tirell and H.T. Davis, J. Chem. Phys. **87**, 1733 (1987)

[4] P. Bordarier, M. Schoen, A.H. Fuchs, Phys Rev E **57**, 1621 (1998)