Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

**Rapid wetting dynamics** ANDREAS CARLSON, GABRIELE BELLANI, GUSTAV AMBERG, Linné Flow Center, Department of Mechanics, The Royal Institute of Technology, LINNÉ FLOW CENTER, DEPARTMENT OF MECHANICS, THE ROYAL INSTITUTE OF TECHNOLOGY COLLABORATION
— Contact lines between solids and liquid or gas interfaces appear in very many instances of fluid flows. This could be coffee stains, water-oil mixtures in oil recovery, hydrophobic feet of insects or leaves in nature. In the present work we elucidate some of the wetting physics governing the very rapid wetting. Experimental and numerical results of spontaneously spreading droplets are presented, where focus is directed towards understanding the very rapid flow regime and highly dynamic initial wetting phase, where the contact line speed is limited by dissipative processes on a molecular scale occurring at the contact line. In particular we show the influence of the surface wettability and the liquid viscosity on the spreading dynamics, such as the contact line motion and dynamic contact angle in time.

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Date submitted: 09 Aug 2010 Electronic form version 1.4