Abstract Submitted
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Evaporation of femtoliter sessile droplets[1] THIERRY ONDARCUHU, CEMES-CNRS, Toulouse, JULIEN ARCMONE, CNM-IMB Barcelona, ERIK DUJARDIN, CEMES-CNRS, Toulouse, GEMMA RUIS, FRANCESC PEREZ-MURANO, CNM-IMB, Barcelona — The evaporation of sessile microdroplets with diameter in the millimeter range has been studied for a long time both theoretically and experimentally. However, experimental data are lacking on evaporation in the micron range despite its importance in the development of micro and nanofluidics. We show here that this problem can be addressed by a combination of two newly developed techniques. We recently demonstrated that droplets in the femto to attoliter range can be deposited in a surface using an atomic force microscope-based method so-called NADIS[1]. Using nanopositioning technique such "femtodroplets" could be deposited on a quad-beam resonator (QBR), ultrasensitive mass sensor with a mass resolution more that 1000 times better than quartz microbalance. During evaporation, we monitored temporal evolution of the droplets mass down to 10 fg (10 attoliters volume) resolution. The results obtained on glycerol droplets with initial volumes ranging from 0.2 fL to 20 fL are interpreted in the framework of existing models [2].

[1] A.Fang, E. Dujardin, T.Ondarcuhu, NanoLett. 6 (2006) 2368.
[2] J. Arcamone et al, J.Phys.Chem.B 111 (2007) 13020.

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