Abstract Submitted for the MAR17 Meeting of The American Physical Society

Deposition kinetics of colloidal particles at high ionic strengths<sup>1</sup> CESARE CEJAS, FABRICE MONTI, MARINE TRUCHET, Institut Pierre Gilles de Gennes - ESPCI Paris, JEAN-PIERRE BURNOUF, Sanofi Recherche, PATRICK TABELING, Institut Pierre Gilles de Gennes - ESPCI Paris — Using microfluidic experiments, we describe the deposition of a fluid suspension of weakly brownian particles transported in a straight channel at small Reynolds numbers under conditions of high ionic strengths. Our studies fall in a regime where electrostatic interactions are neglected and particle-wall van der Waals interactions govern the deposition mechanism on channel walls. We calculate the deposition kinetics analytically for a wide range of physical parameters. We find that the theory agrees with numerical Langevin simulations, which both confirm the experimental results. From this analysis, we demonstrate a universal dimensionless deposition function described by contributions from advection-diffusion transport and adhesion interactions (Hamaker constant). Results show that we accurately confirm the theoretical expression for the deposition kinetics. From a surface science perspective, working in the van der Waals regime enables to measure the Hamaker constant, a task that would take much longer to perform with the standard AFM.

<sup>1</sup>Funding from Sanofi Recherche and ESPCI

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Date submitted: 09 Feb 2017

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