

Abstract Submitted  
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**Some scaling laws for fluid dynamics in a confined space** KO OKUMURA, Ochanomizu Univ — This talk is composed of several topics of fluid dynamics in confined spaces. Scaling laws and simple physical understanding is stressed in this talk. Wetting on textured surfaces where array of pillars of micron scale are arranged is one of the topics, which include wetting transition of a drop on the surfaces and capillary rise on textured surfaces at the micron scale. For the capillary rise, we discuss a new type of scaling law resulting from competition of three effects: capillary drive, viscous and gravitational drags [1]. We also discuss drag frictions acting on fluids in confined spaces, in which liquid film is confined on the micron scale and the role of the film is important for understanding the physics of the drag [2]. Other topics include the coalescence of liquid drops in a confined space in different situations. Especially, we discuss the effect of high electric field in the coalescence phenomena on the system studied in [3]. In addition, formation of liquid thin film and bursting of the film during liquid-drop coalescence are also discussed.

[1] Noriko OBARA and K.O., Phys. Rev. E 86, 020601R (2012).

[2] Ayako ERI and K.O., Soft Matter, 7, 5648 (2011).

[3] Maria YOKOTA and K.O., Proc. Nat. Acad. Sci. (USA), 108 (2011) 6395.

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