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Particle equilibrium in 3D-channel flow for one and two particles JOY KLINKENBERG, Technische Universiteit Eindhoven & KTH Stockholm, H.C. DE LANGE, Technische Universiteit Eindhoven, WIM-PAUL BREUGEM, Technische Universiteit Delft, LUCA BRANDT, KTH Stockholm — We perform Direct Numerical Simulations of an Euler-Lagrange coupled particle-laden channel flow to investigate the equilibrium position of particles. The channel is periodic in both stream- and spanwise direction, with no-slip on top and bottom walls. Particles are neutrally buoyant and modeled using the Immersed Boundary Method, with a dimater of 20% of the channel height. The lateral movement of one and two particles is studied for Reynolds numbers, based on channel height and bulk velocity, between 5 and 1000. We show that with a Reynolds number change, the equilibrium position changes. To investigate the effect of periodicity, several channel lengths and widths have been investigated. Also the effect of particle-particle interaction on the equilibrium is investigated by modelling 2 particles, influencing each other.

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