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Shear-induced migration of a suspension under planar confinement[1] FERNANDO VEREDA, University of Granada, Granada, Spain, NIKOLAY IONKIN, Brown University, Providence, RI, AMANDA A. HOWARD, Pacific Northwest National Laboratory, Seattle, WA, MARTIN MAXEY, DANIEL HARRIS, Brown University, Providence, RI — The oscillatory flow of a suspension of neutrally buoyant, non-Brownian spherical particles in a rectangular channel at low Reynolds number is studied through experiments and numerical simulations. Particles, which are practically confined to a plane, migrate to regions of lower shear rate. Prior experimental and numerical work in oscillating Poiseuille flows has demonstrated the importance of the strain amplitude on shear-induced migration. In this talk, we present results for the early development of the suspension, including the dependence of the steady state configuration of the system and the dynamics of the shear-induced migration on particle concentration, strain amplitude, and channel dimensions. Our measurements are directly compared to simulations using the Force Coupling Method (FCM) for monodispersed spherical particles in a channel.

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