Electronic Supplementary Material (ESI) for Soft Matter

Movie captions

Video 1: Deformable drop driven by Poiseuille flow in a parallel-wall channel migrates towards the channel center. Capillary number $\mathrm{Ca} = 0.5$ and channel width $W/d = 1.67$.

Video 2: Relative motion for a pair of rigid spheres (top) and deformable drops (bottom) in Poiseuille flow in a parallel-wall channel. Deformable drops tend to a stationary separation but rigid spheres maintain their initial separation. Capillary number $\mathrm{Ca} = 0.2$ and channel width $W/d = 1.2$.

Video 3: Pairing instability for an array of rigid spheres in Poiseuille flow in a parallel wall channel. Channel width $W/d = 1.2$, and initial interparticle separation $\Delta X = 4a$.

Video 4: Pairing instability for an array of deformable drops in Poiseuille flow in a parallel wall channel. Capillary number $\mathrm{Ca} = 0.2$, channel width $W/d = 1.2$, and initial interparticle separation $\Delta X = 4a$.

Video 5: Pairing instability and pair-switching cascade for an array of deformable drops in Poiseuille flow in a parallel wall channel. Capillary number $\mathrm{Ca} = 0.2$, channel width $W/d = 1.2$, and initial interparticle separation $\Delta X = 3a$.

Video 6: Linear array of rigid spheres is unstable to lateral displacements. Initially array is aligned with the external flow except that the trailing particle has a half radius transverse displacement. Channel width $W/d = 1.2$, interparticle separation $\Delta X = 3a$.

Video 7: Deformation stabilizes a linear array of drops with respect to lateral displacements. Initially array is aligned with the external flow except that the trailing particle has a half radius transverse displacement. Capillary number $\mathrm{Ca} = 0.2$, channel width $W/d = 1.2$, and initial interparticle separation $\Delta X = 3a$.