

Abstract Submitted  
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**Particle dispersion and segregation in suspension flows with bidispersed particle sizes** AMANDA HOWARD, MARTIN MAXEY, Brown University — Suspensions of neutrally buoyant, non-Brownian particles with monodispersed size in a low Reynolds number pressure driven flow display an irreversible net flux of particles towards the center of the channel, leading to tightly packed particles at the core of the channel and a low concentration of particles near the walls. When the particles have bidispersed sizes, the large particles on average migrate to the center of the channel faster than the smaller particles, which can lead to separation of the particles by size. We will present a series of numerical simulations for dense suspensions of bidispersed particles in a planar channel with a range of size ratios. The particles segregate by size across the channel when both the size ratio of large to small particles and the initial volume fraction of large particles are sufficiently large. We will discuss the dynamics behind this segregation and the role of particle contact pressure and compare the volume fraction and stress profiles to those of monodispersed suspensions and suspension balance models.

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