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Stratified Shear Flows In Pipe Geometries¹ GEORGE HARABIN, ROBERTO CAMASSA, RICHARD MCLAUGHLIN, University of North Carolina at Chapel Hill, UNC JOINT FLUIDS LAB TEAM TEAM — Exact and series solutions to the full Navier-Stokes equations coupled to the advection diffusion equation are investigated in tilted three-dimensional pipe geometries. Analytic techniques for studying the three-dimensional problem provide a means for tackling interesting questions such as the optimal domain for mass transport, and provide new avenues for experimental investigation of diffusion driven flows. Both static and time dependent solutions will be discussed.

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