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Ray Treinen* (treinen@math.ksu.edu), 138 Cardwell Hall, Kansas State University, Manhattan, KS 66502. *On the symmetry and existence of solutions of some floating drop problems.*

Floating drops are configurations of three fluids in equilibrium. Presumably one fluid has significantly less volume, and is the drop. Floating drops may arise in bounded containers, or in unbounded regions, and the drop may be either more or less dense than the supporting fluid. These cases are called heavy or light drops. Presented here is a general existence theorem for symmetric configurations. A theorem is presented on the symmetry of the configurations which form a partition of \mathbb{R}^3 . (Received September 21, 2009)