Miles Wheeler
Desingularization and global continuation for hollow vortices

Hollow vortices are regions of constant pressure with finite circulation embedded into an otherwise irrotational flow. We prove that non-degenerate configurations of point vortices which steadily translate or rotate can be desingularized into analogous configurations of hollow vortices. The resulting local curves of solutions can then be extended using global bifurcation theory. As examples, we give what appear to be the first rigorous existence results for rotating hollow vortex pairs and for stationary hollow vortex tripoles.

This is joint work with Ming Chen and Samuel Walsh.