1070-34-22   **Anna M. Barry*** (`annab@bu.edu`), **Glen R. Hall** and **C. Eugene Wayne**. *Relative Equilibria of the (1+N)-Vortex Problem.*

We study relative equilibria of the $(1 + N)$-vortex problem where N vortices have small, equal circulation and one vortex has large circulation. In the limit, the problem reduces to seeking critical points of a particular potential function defined on a circle. In contrast to the Newtonian $(1 + N)$-body problem, there are typically multiple relative equilibria for both small and large N. Linear stability is also studied, and situations are found where there are no stable relative equilibria. (Received December 12, 2010)