1023-76-1299 **Sara E. Frietze*** (sarafrtz@yahoo.com), **Robert Gerrity** and **Tiago Picon**. *The inviscid limit of incompressible fluid flow in an annulus.*

Incompressible, circularly symmetric fluid flow in a two-dimensional annulus $A = \{x \in \mathbb{R}^2 | 1 < |x| < 2\}$ with fixed outer boundary and rotating inner boundary is analyzed in the low-viscosity limit. We conclude that in the inviscid limit, velocity solutions to the governing equations are solutions to the corresponding Euler zero-viscosity equations. However, the vorticity production proves to be non-zero in the inviscid limit given appropriate non-trivial initial conditions—differing from Euler flow, which produces zero-vorticity at the boundary. Results from semigroup theory together with the ability to calculate boundary conditions for the vorticity equations (due to the simple symmetry of the system) are used to prove the above conclusions. (Received September 25, 2006)