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Minimal energy damping in an axisymmetric flow ALEXANDER SACHS, University of Massachusetts Lowell — The method of Lagrange's undetermined multipliers is used to find the velocity field which minimizes the energy damping for a viscous incompressible fluid described by the Navier- Stoke equation. The vorticity of this velocity field obeys a Helmholtz equation with an undetermined parameter. This Helmholtz equation is used to determine the axisymmetric velocity field in a cylinder. This velocity field is slightly different from the Poiseuille velocity field. The rate of energy damping per unit energy is calculated as a function of the parameter. It is a minimum when the parameter is equal to the root of a Bessel function.

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