

**Natarajan, Ramesh; Acrivos, Andreas**

**The instability of the steady flow past spheres and disks.** (English) Zbl 0780.76027  
*J. Fluid Mech.* 254, 323-344 (1993).

We consider the instability of the steady, axisymmetric base flow past a sphere, and a circular disk (oriented broadside-on to the incoming flow). Finite-element methods are used to compute the steady axisymmetric base flows, and to examine their linear instability to three-dimensional modal perturbations.

**MSC:**

**76E05** Parallel shear flows in hydrodynamic stability  
**76D05** Navier-Stokes equations for incompressible viscous fluids  
**76M10** Finite element methods applied to problems in fluid mechanics

Cited in **2** Reviews  
Cited in **72** Documents

**Keywords:**

axisymmetric flow; linear instability; three-dimensional modal perturbations

**Full Text:** [DOI](#)

**References:**

- [1] DOI: 10.1143/JPSJ.11.1104 · doi:10.1143/JPSJ.11.1104
- [2] Strykowski, J. *Fluid Mech.* 218 pp 71– (1990)
- [3] Sakamoto, *Trans. ASME* 112 pp 386– (1990)
- [4] Jackson, J. *Fluid Mech.* 182 pp 23– (1987)
- [5] DOI: 10.1137/0912045 · Zbl 0724.76022 · doi:10.1137/0912045
- [6] DOI: 10.1146/annurev.fl.23.010191.002213 · doi:10.1146/annurev.fl.23.010191.002213
- [7] DOI: 10.1063/1.1761531 · doi:10.1063/1.1761531
- [8] Fornberg, J. *Fluid Mech.* 225 pp 655– (1991)
- [9] Fornberg, J. *Fluid Mech.* 190 pp 471– (1988)
- [10] Achenbach, J. *Fluid Mech.* 62 pp 209– (1974)
- [11] DOI: 10.1016/0010-4655(89)90149-5 · Zbl 0798.65053 · doi:10.1016/0010-4655(89)90149-5
- [12] Roos, *AIAA J.* 9 pp 285– (1971)
- [13] Provansal, J. *Fluid Mech.* 182 pp 1– (1987)
- [14] Natarajan, *Proc. R. Soc. Lond. A* 441 pp 211– (1993) · Zbl 0816.76048 · doi:10.1098/rspa.1993.0058
- [15] DOI: 10.1016/0021-9991(92)90315-P · Zbl 0759.65070 · doi:10.1016/0021-9991(92)90315-P
- [16] DOI: 10.1063/1.861328 · doi:10.1063/1.861328
- [17] Magarvey, *Can. J. Phys.* 43 pp 1649– (1965) · doi:10.1139/p65-154
- [18] DOI: 10.1063/1.1706409 · doi:10.1063/1.1706409
- [19] Magarvey, *Can. J. Phys.* 39 pp 1418– (1961) · doi:10.1139/p61-169
- [20] Kim, J. *Fluid Mech.* 211 pp 73– (1990)
- [21] DOI: 10.1063/1.1761532 · doi:10.1063/1.1761532
- [22] DOI: 10.1063/1.1711133 · Zbl 0116.18903 · doi:10.1063/1.1711133
- [23] Taneda, J. *Fluid Mech.* 85 pp 187– (1978)

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.