

## **Singularity Induced Exterior and Interior Stokes Flows**

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In this paper, the two-dimensional Stokes flow inside and outside a circular cylinder induced by a pair of line singularities (rotlet and stokeslet) is studied. Analytical solutions for the flow field are obtained by straightforward application of the Fourier method. The streamline patterns are sketched for a number of special cases where the cylinder is either stationary or rotating about its own axis. In particular, some interesting flow patterns are observed in the parameter space which may have potential significance in studies of various flows including flows in journal bearing, mixing flows, chaotic flows etc. We also investigate into the way the streamline topologies change as the parameters are varied.

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