**Oscillatory Flow of a Circular Cylinder in a Couple-stress Fluid: Case of Resonance**

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**Abstract:**

The flow generated due to rotary oscillations of a circular cylinder about its axis of symmetry in an incompressible Couple-stress fluid is considered. The Reynolds number for the flow is less than unity due to very slow flow and hence nonlinear convective terms in the equations of motion are neglected. A rare but distinct special case in which material constants satisfy a resonance condition is considered. The velocity component for the flow derived. The Skin friction acting on the cylinder is evaluated and the effect of physical parameters like Reynolds number and Couple stress parameter on the Skin friction due to oscillations is shown through graphs.

***Keywords*:** Couple-stress fluid; Rotary oscillations; Skin friction.