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FLOW OF AN ELASTICO-VISCOUS SECOND-GRADE FLUID BETWEEN TWO INFINITE ROTATING DISCS WITH SUCTION

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Abstract

The present paper deals with the problem of an elastico-viscous second-grade fluid between two infinite rotating discs assuming suction at one of them. Numerical solution for the governing non-linear equations has been obtained by finite difference method over the entire range of the physical parameters. Effects of elastico-viscosity and suction on the velocity field have been studied in detail and shown graphically for three typical cases: (a) when the discs rotate in the same sense, (b) when the discs rotate in the opposite sense and (c) when one disc rotates and the other is at rest.

Keywords : Second-grade fluid, Infinite rotating discs, Suction, Finite difference method.