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Flow of a Jeffrey fluid through a porous medium in narrow tubes

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Abstract

In this paper, the effects of porous medium on a two-fluid model for the flow of Jeffrey fluid in tubes of small diameters are studied. It is assumed that the core region consists of Jeffrey fluid and Newtonian fluid in the peripheral region. The analytical solutions for velocity, flow flux, effective viscosity, core hematocrit and mean hematocrit have been derived and the effects of various relevant parameters on these flow variables have been studied. It is noticed that the flow exhibits the anomalous Fahraeus-Lindqvist effect. © 2015 by Begell House, Inc.

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