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INERTIA EFFECT UNDER COUPLE STRESS FLUID IN LAMINAR FLOW ON POROUS JOURNAL BEARING

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ABSTRACT

We derive the more fundamental equation where We focus on how to neglect inertia terms of the Navier stokes equation, since this is well understood where the consideration of the additional viscous terms in the Navier stokes equation is a topic of current research. We considered two examples for inertia term of Navier Stokes equation where I neglecting viscous term in driving the Reynolds equation with help of Darcy's velocity for porous journal bearing of couple stress fluid which we can also proved to be important in some situation. First case any surface feature under couple stress fluid resulting in film geometry where $\frac{\partial p}{\partial \theta} = 0(1)$ or $\frac{\partial 2p}{\partial \theta 2} = 0(1)$ comprises with Darcy equation for porous journal bearing discuss in recent research paper. The singularity comes from the additive conjunction of blinding of additive moles at the curvature on the porous bearing housing which is less serve than the one arising from the film gradient, but in both cases using the Reynolds equation will not allow a proper matching between the fluid regions. The second example implicated where the Reynolds equation will not describe what occur a solid particle is within the conjunction in porous bearing shell. The significant error is to be determining with inertia effect for porous bearing and without inertia effect for porous bearing between them in these research paper.

KEYWORDS: Order 1, Order$\left(\frac{D}{L}\right)^2$, Darcy velocity, Inertia Creation, Steam Function, Error Creations