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Numerical study of thermal Effects in the hydrodynamic Behavior of textured journal bearings

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Abstract: The journals bearing characteristics with texture presence on the bearing surface are investigated. The thermaleffect has been studied. The used numerical approach in this analysis is Finite Difference Method. The textured bearingperformance enhancement passes essentially by a minimum film thickness and a friction torque improvement through anappropriate surface texture geometry and right texture distribution on the bearing surface. It is found that the simulationresults are in good concordance with those issued from the litterature. The obtained results by considering thetemperature effect are more realistic.

Keywords : Hydrodynamic lubrication, journal bearing, texturation, dimple