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Book Reviews

Thermal Deformation in Frictionally Heated Systems, R.A. Burton, Editor, Elsevier, 1980, 289 pages.

Reviewed by F. F. Ling[1]

This volume is the proceedings of a workshop sponsored by the U.S. Office of Naval Research held at the Naval Academy, Annapolis, 19–20 June 1979. Under the subject area, various topics were addressed by experts and these were very well done. Though not part of the proceedings, unresolved issues were identified and discussed. Topics covered are: thermal deformation in frictionally heated contact, the transient thermoelastic contact of a sphere on a plane, thermoelastic effects in a thin sliding seal, thermoelastic contact involving a sharp corner, surface displacements for high speed rubs, the thermoelastic transition from line to point contact, the influence of thermoelastic deformations on the operation of the face seal, thermal convection effects in a thin viscous film, the effect of ring deflection and heat transfer on the thermoelastic instability of rotating face seals, observations of thermoelastic instability in mechanical face seals, thermomechanical phenomena in high speed rubbing, wear of seal materials used in aircraft propulsion systems, a phenomenological model of abradable wear in high performance turbomachinery, thermoelastic effects in brakes, an examination of a possible mode of scuffing failure in simple sliding, size effects in tilting pad thrust bearings, curvature variation of the clearance reduction in a short cylindrical bearing with asymmetrical heating, recent advances in electrical current collection, thermoelastic effects in brushes with high current and high speeds.

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