**Heat transfer and Entropy Generation Analysis of MHD Casson Fluid Flow through a Microchannel**

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**Abstract:** The heat transfer and entropy generation in a MHD flow of Casson fluid through a porous microchannel with thermal radiation were investigated numerically. Combined effects of suction/injection, hydrodynamic slip, magnetic field and convective boundary condition on the heat transfer and entropy generation are studied. The dimensionless equations are solved numerically by using fourth-fifth-order Runge–Kutta integration method along with shooting technique. Moreover, influences of pertinent parameters on velocity, temperature and entropy generation were discussed in detail and illustrated graphically. Based on numerical results, we can see that, entropy generation rate increases with an increase in radiation parameter and Biot number. As Hartmann number increases, the entropy generation decreases at the both cooled and heated plates and increases at the centerline region of the microchannel.

**Keywords:** Casson fluid flow, Porous microchannel, Thermal radiation, Entropy generation.