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**Characteristic of Boundary Layer on a Continuous Moving Surface in Power Law Fluids**[1] XINXIN ZHANG, HAO ZHANG, Department of Thermal Engineering, University of Science and Technology Beijing, LIANCHUN ZHENG, Department of Mathematics and Mechanics, University of Science and Technology Beijing — This paper presents a theoretical and numerical analysis of the boundary layer flow on a continuous moving surface in power law fluid. The estimated formulas for the laminar boundary layer thickness and the friction coefficient are obtained. The analogy between the thermal diffusivity and the kinematic viscosity is drawn and the power law model of the thermal diffusivity is established. The similarity equations of the boundary layer are obtained, which only involve two independent parameters: power law index and Prandtl number. The velocity distribution, the temperature distribution and the shearing stress distribution are obtained numerically by considering the effect of the power law viscosity on the viscous and thermal diffusivities. The results show that the dimensionless velocity distribution depends on the velocity ratio parameter of the plate and the power law index. The dimensionless temperature distribution depends not only on the velocity ratio parameter of the plate, but also on the power law index and Prandtl number of fluids.

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