Nano Liquid Thin Film Flow over an Unsteady Stretching Sheet

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Abstract : A numerical model is developed to study nano liquid film flow over an unsteady stretching sheet in the presence of hydromagnetic have been investigated. Similarity transformations are used to convert unsteady boundary layer equations to a system of non-linear ordinary differential equations. The resulting non-linear ordinary differential equations are solved numerically using Runge-Kutta-Fehlberg and Newton-Raphson schemes. A relationship between film thickness β and the unsteadiness parameter S is found, the effect of unsteadiness parameter S, and the hydromagnetic parameter S, on the velocity and temperature distributions are presented. The present analysis shows that the combined effect of magnetic field and viscous dissipation has a significant influence in controlling the dynamics of the considered problem. Comparison with known results for certain particular cases is in excellent agreement.