

عنوان مقاله:

Thermal Radiation and Magnetic Fields Effects on Nanofluids flowing through Stretch Sheet

محل انتشار:

مجله مکانیک کاربردی محاسباتی، دوره 54، شماره 1 (سال: 1402)

تعداد صفحات اصل مقاله: 16

نویسندگان:

.Chandu Koli - *Department of Applied Science, SVKM Institute of Technology, Dhule, India*

.S.N. Salunkhe - *Rani Laxmibai Mahavidyalaya Parola, Jalgaon, India*

خلاصه مقاله:

The purpose of the present study is to observe when suction/injection is present, effects of thermophoresis and Brownian motion, emphasises the combined influence of convective heat radiation and the magnetic field nanofluid flow in the direction of a permeable stretched sheet. The Rosseland approximation is used to explain the radiative heat flux in the heat convective analysis. Hypersonic flight, power plants and vehicles, gas turbines and reactors of nuclear power, and the modelling of relevant equipment, among other applications, applicable from radiative heat transfer. The boundary wall is designed into account for stretching and suction/injection circumstances. In order to simplify the dimensionless version of fundamental governing equations, the governing nonlinear partial differential equations (PDEs) are changed to ordinary differential equations (ODEs) by using transformations of similarity. In the final numerical result version of fundamental equations is simplified through the use of the numerical approach of the shooting technique by the Runge-Kutta method and a shooting scheme. Graphical data demonstrations are in order to study the effect on dissimilar physical constraints, such as velocity, temperature, and concentration of surrounding environment the numerical data is also used to look into changing trends in rates of coefficient of skin friction, mass and heat transfer. Additionally in which proposed model is validated is by making comparisons to an isolated instance of a previously researched issue.

کلمات کلیدی:

thermal radiation, magnetic field, Nanofluid, Stretching sheet, Runge-Kutta technique

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1627490>

