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Effect logs of double diffusion on MHD Prandtl nanofluid adjacent to stretching surface by way of numerical approach

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This communication is carried to contemplate the unique and novel characteristics of nano fluid by constructing formulation for Prandtl fluid model. The fascinating aspects of thermo diffusion and diffusion effects are also accounted in the communication. Mathematical modeling is performed by employing boundary layer approach. Afterwards, similarity variables are selected to convert dimensional non-linear system into dimensionless expression. The solution of governing dimensionless problem is executed by Runge-Kutta (RK-5) method along with shooting method (SM). Graphical evaluation is displayed to depict the intrinsic behavior of embedded parameter on dimensionless velocity, temperature, solutal concentration and nanoparticle concentration profiles. Furthermore, the numerical variation for skin friction coefficient, local Nusselt number, Sherwood number and nano Sherwood number is also examined through tables. The assurance of current analysis is affirmed by evolving comparison with previous findings available in literature, which sets a benchmark of quality of implemented computational approach. It is inferred from the computation that concentration profile increases whereas Sherwood number decreases for progressive values of Dufour solutal number.

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Inversion methodology for induced mathematical method of different investigations

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Over the years in both theoretical and exploration of physics and mathematics, concept of inversion of physical and mathematical data has played an important role in the interpretation and understanding of mathematical investigation of the different categories. This paper actually defined the concepts involved in carrying out inversion on induced mathematical methods of different steps. The algorithm is based on the linearization of equation of induced polarization (IP) response and the use of minimization of the corresponding objective function of the chargeability model subject to data constraints. Field example was considered where the inversion scheme was applied to measurements of chargeability in the time domain. Generated model was used to solve the resulting optimization problem defining a global objective function. Applying the mathematical algorithm, result from the application of the inversion scheme to induced polarization (IP) data obtained from a suspected lead-zinc site in Benue state, Nigeria showed anomalous zones revealing possible mineralization having attributes of galena, sphalerite and pyrite with resistivity value range of between 100–300 ohm-m at an estimated depth of about 50 m with an overburden thickness to the top of base-metal sulphide of about 30 m.

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