



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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FRESHMAN ENGINEERING DEPARTMENT

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Faculty Colloquium Report

Date: 01-08-2026

Title of the Presentation : Brownian and Thermophoresis Diffusion Effects on Magnetohydrodynamic Hybrid Nanofluid Flow with Radiation and Activation Energy

Date: : 31-07-2026

Presented by : Dr. K.R. Kavitha
Professor, Division of Mathematics, FED

No. of Faculty attended : 27

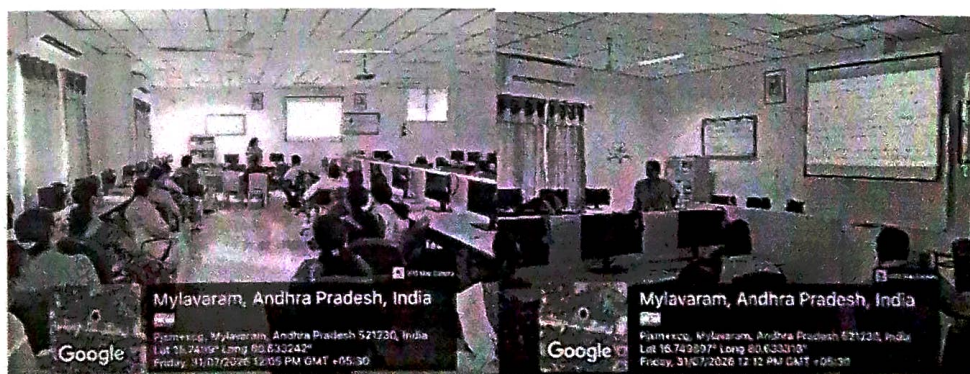
Abstract: The study investigates the heat and mass transfer behavior of magnetohydrodynamic (MHD) hybrid nanofluid flow over a stretching surface embedded in a porous medium, incorporating the combined effects of Brownian motion and thermophoresis diffusion in the presence of activation energy and thermal radiation. Two different kinds of fluids, namely Al_2O_3 /water/water and Cu/water/water, are selected for investigation. The governing nonlinear partial differential equations are transformed into ordinary differential equations through similarity transformations and solved numerically using the shooting technique in MATLAB. The influence of key parameters such as the magnetic field, radiation, and chemical reaction rates on velocity, temperature, and concentration distributions is examined. Engineering performance measures including skin friction, Nusselt number, and Sherwood number are evaluated.

Outcomes:

- The colloquium increased awareness of current research in MHD hybrid nanofluids.
- It provided an opportunity to share knowledge and ideas among faculty members.
- The session helped faculty understand new concepts and applications related to fluid flow, nanofluids, and heat transfer.
- It encouraged further research and collaboration among faculty members.

Link to the video recording: <https://11nk.dev/oh2s4jp>

Glimpses of the Presentation:



Dr. Syed Yusub
Dr. Syed Yusub
Colloquium Coordinator

Dr. T. Satyanarayana
Dr. T. Satyanarayana
Head of the Department