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**M. A. K. Baig and Rayees Ahmad Dar**

UPPER AND LOWER BOUNDS FOR CSISZAR  $f$ -DIVERGENCE  
IN TERMS OF SYMMETRIC  $J$ -DIVERGENCE AND  
APPLICATIONS 263-278

**Abstract:** In this paper, we point out an upper and lower bound for the Csiszar  $f$ -divergence of two discrete random variables in terms of the symmetric  $J$ -divergence measure. Some particular cases for chi-square distance, Hellinger discrimination, triangular discrimination, Renyi's  $\alpha$ -entropy, Bhattacharya distance and harmonic distance are considered.

**Joydip Dhar and Anuj Kumar**

THE STABILITY ANALYSIS OF PHYTOPLANKTON AND  
ZOOPLANKTON IN SPATIALLY HETEROGENEOUS DOMAIN 279-287

**Abstract:** A mathematical model of interacting phytoplankton and zooplankton is population proposed, incorporating the spatial movement of plankton population. We also assume that the re-sease of the toxic substance by the phytoplankton species. Since the plankton populations are not static and uniformly distributed over a region. Therefore, the study of existence, coexistence and stability analysis makes sense in spatio-temporal domain. In this paper we have studied the existence of linear and nonlinear stability conditions for the uniform as well as non-uniform steady state

system. It is observed that the diffusion process enhances the stability of the plankton system.

**P. Chandrakala and S. Antony Raj**

RADIATIVE HEAT AND MASS TRANSFER EFFECTS ON MOVING  
ISOTHERMAL VERTICAL PLATE IN THE PRESENCE OF  
MAGNETIC FIELD

289-302

**Abstract:** Thermal radiation effects on flow past an impulsively started infinite vertical isothermal plate with variable mass diffusion in the presence of magnetic field is studied. The fluid considered here is a gray, absorbing-emitting radiation but a non-scattering medium. The plate temperature is raised to  $T_w$  and the concentration level near the plate is also raised linearly with time. The dimensionless governing equations are solved using the Laplace-transform technique. The velocity, temperature and skin-friction are studied for different parameters like magnetic field parameter, radiation parameter, thermal Grashof number, mass Grashof number and time. It is observed that the velocity increases with decreasing values of the radiation parameter and decreases in the presence of magnetic field.

**W. T. Sulaiman**

ON INCLUSION RELATIONS FOR ABSOLUTE SUMMABILITY

303-313

**Abstract:** We obtain necessary and sufficient conditions for a series  $\sum a_n$  summable  $|R, p_n|_k, 1 < k \leq s < \infty$ , to imply that the series  $\sum a_n \lambda_n$  is summable  $|T|_s$  where  $(R, p_n)$  is a weighted mean matrix and  $T$  is a lower triangular matrix. Some other results are also deduced.

**S. A. Wahid**

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**Baljeet Singh, Jagdish Singh and Ajay Kumar**

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**Shavetambry Tejpal and T. D. Narang**

ON CLOSEST AND MINIMAL POINTS 343-353

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**Rajneesh Kumar, Ranjit Singh and T. K. Chadha**

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**I. H. Elmabruk**

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