

**ABSTRACTS OF PAPERS
ACCEPTED FOR PUBLICATION**

**A SIMPLE PROOF OF THE CHURCHHOUSE CONJECTURE
CONCERNING BINARY PARTITIONS**

by HANSRAJ GUPTA, F.N.A.

Two proofs of the conjecture have already been given one by Rödseth and the other by Gupta. This is simpler and more direct than any of them.

ON THE EXCEPTIONAL VALUES OF ENTIRE FUNCTIONS

by V. SREENIVASULU

A new exceptional value for the entire functions is defined and the relation between this and the well-known exceptional values of Borel, Nevanlinna, Valiron and Shah are established.

**SLOW STEADY MOTION OF A VISCOUS INCOMPRESSIBLE
FLUID THROUGH ROTATING TAPERED ANNULUS**

by M. C. GUPTA *and* M. C. GOYAL

In this paper, the motion of a viscous incompressible fluid through rotating tapered annulus has been investigated. The radial and azimuthal velocities have been obtained in exact forms with the help of Legendre functions. For the slow motion these two velocities have been found to be independent of each other.

**SOURCE FLOW BETWEEN TWO PARALLEL DISKS WITH
DIFFERENT PERMEABILITY**

by M. C. GUPTA *and* M. C. GOYAL

The solution of Navier-Stokes equations has been obtained for the flow of a viscous incompressible fluid between two porous stationary disks with different transversal velocities V_1 and V_2 . In general V_1 and V_2 are different, and thus eight types of flow are possible, by considering positive and negative signs of V_1 and V_2 . The present study fully summarizes the case when $|V_2| \geq |V_1|$ and in the case when $|V_1| \geq |V_2|$, the problem has been solved by a simple transformation, at the end of the paper. The effect of different permeability over that of equal porosity of the disks has been studied as the particular case of the investigation.

ON GENERALIZED CURVES IN A FINSLER SPACE

by S. C. RASTOGI and H. K. N. TRIVEDI

Union, hyper-asymptotic and hypernormal curves in a subspace of a Finsler space have been studied by various authors. Rastogi (1971) defined C_s -curves in a subspace of a Finsler space which give a unified method to study these curves. Later on Rastogi and Trivedi (1971) defined some new curves in a Finsler space, which they called O^* , R^* , N^* , α , β , γ , secondary O^* , secondary R^* , secondary N^* , secondary α , secondary β and secondary γ -curves. In this paper corresponding to the congruences $\lambda_{(\mu)}^i$ and $\lambda_{(\mu)}^{*i}$ (defined with respect to $n_{(\mu)}^i$ and $n_{(\mu)}^{*i}$) we have defined two curves, which we shall call G -curve and secondary G -curve. These curves are such that they give a unified method to study all those curves mentioned above. In fact it has been proved that these curves including many other important curves are particular cases of G -curves.

ON FACTORIZATION OF ENTIRE FUNCTIONS WITH INFINITELY MANY REAL ZEROS

by F. GROSS and C. C. YANG

In this paper, criteria for primeness of certain classes of entire functions are established. We prove that f is pseudoprime when f is an entire function of order ρ ($0 < \rho < \infty$) with infinitely many zeros such that all except possibly finitely many of them are real. In particular, we show that when $\infty > \rho > 1/2$ and all except possibly finitely many of the zeros of a are positive (or negative), then f is prime. As a consequence of this, we answer a conjecture of Ozawa's that $1/I(z)$ is a prime function. Similar results for entire functions of infinite order are also obtained.

NON-LINEAR STABILITY OF PERFECTLY CONDUCTING FLOWS

by N. RUDRAIAH, B. C. CHANDRASEKHARA and N. SHANTHA KUMAR

The non-linear stability of a convective flow of a non-viscous perfectly conducting fluid is investigated using the energy method. A universal stability estimate, namely a stability limit for motions subject to arbitrary non-linear disturbances, is obtained in terms of the Alfvén number (S), the Rayleigh number (R_a), the Prandtl number (P_r) and the number ϵ connected with the geometry of the flow. The existence of an open region of certain stability region near the origin of the (R_a, S) Cartesian plane for a fixed ϵ/P_r is also shown. Further, the universal stability limit is improved using the variational techniques, by obtaining the appropriate Euler-Lagrange equations. A uniqueness theorem for steady flow is also established. We found that the magnetic field decreases the stability region as opposed to the linear theory where the introduction of the magnetic field inhibited instability.

ON SOME RESULTS INVOLVING GENERALIZED
HYPERGEOMETRIC POLYNOMIAL

by I. A. KHAN

Some results involving generalized hypergeometric polynomial have been established. The results are of very general character.

ON CERTAIN INTEGRALS INVOLVING FOX'S *H*-FUNCTION

by C. K. SHARMA and P. M. GUPTA

In the course of an attempt to give extension of certain results of MacRobert (1958) and Sharma (1964), the infinite integral is evaluated, in terms of Fox's

$$\int_0^\infty x^{\beta-1}(x+y)^{-\alpha-\beta} H_{p,q}^{u,v} \left[z x^{(m-n)h} (x+y)^{nh} \mid \left\{ \begin{matrix} (\alpha_p, e_p) \\ (b_q, f_q) \end{matrix} \right\} \right] dx$$

H-function, for positive integral values of *m* and *n*, whether *m* > *n* or *m* < *n*, and its numerous interesting special cases are discussed.

SINGULAR INTEGRAL EQUATIONS IN COUPLE-STRESS
THEORY OF ELASTICITY

by RANJIT S. DHALIWAL and KASHMIRI L. CHOWDHURY

Integral representation for the displacement vector has been obtained in terms of the basic singular solution of an unbounded elastic continuum. Surface potentials have been constructed and their discontinuities have been proved and utilized to give the integral equations formulation of the boundary value problems.

