



INSTITUTE COLLOQUIUM

INDIAN INSTITUTE OF SCIENCE
BANGALORE

PROFESSOR A. CHAKRABARTI
DEPARTMENT OF MATHEMATICS

will deliver a lecture
on

Mixed boundary value problems in Physics and Engineering

on Thursday, the 12th April, 2001
at 4.00 PM in the Faculty Hall.

The Director
will preside.

All are cordially invited.

Coffee : 5.00 PM
Reception Hall

Prof. S. S. KRISHNAMURTHY
Convener

ABSTRACT

Some Mathematical aspects of the solution of a class of mixed boundary value problems, which occur in Physics and Engineering (for example, (i) Elasticity, (ii) Fluid Mechanics, (iii) Electromagnetic theory, (iv) Acoustics and (v) Heat conduction theory), will be highlighted. The concepts underlying the application of Integral Transforms, Integral Equations, the Wiener-Hopf Technique, Complex Function Theory and Numerical Analysis will be discussed in relation to: (a) Crack problems in Elasticity, (b) Water wave scattering in Fluid Mechanics, (c) Diffraction involving Electromagnetic and Acoustic waves and (d) Diffusion in cooling phenomena. Analysis of the solution of a Singular Integral Equation of the Carleman type applied to the theory of scattering of water waves in the ice-covers will also be presented.

