INDIAN JOURNAL

OF

THEORETICAL PHYSICS

VOLUME 21

1973



Published by the
INSTITUTE OF THEORETICAL PHYSICS
BIGNAN KUTIR, CALCUTTA-700004

BOARD OF EDITORS

Dr. K. C. Kar, D. Sc.

Dr. B. Sen, D. Sc.

Dr. M. Ghosh. D. Sc.

Dr. P. P. Chattarji, D. Phil.

Dr. (Mrs.) C. Dutta, D. Phil.

A. Bhattacharyya, M. Sc., F. Inst. T. P. (Secretary)

J. Biswas, M. Sc. (Asst. Secretary)

NOTICE TO CONTRIBUTORS

- 1. The manuscript of each paper for publication in this journal should be typed on one side of the paper and should be accompanied by a short abstract. Two copies of each paper should be submitted.
- 2. All the references to the published papers should be numbered serially and given at the end of the paper.
- 3. Diagram should be drawn on thick white paper in Indian ink. Tables should be typed on separate sheets.
- 4. The papers to be published in the journal should be original on theoretical physics or on experimental physics with theoretical background.
- 5. Avoid mathematical steps as far as possible. All mathematical expressions, should be typed as far as possible, with unavailable symbols inserted neatly in ink. Be sure to distinguish between capital and small letters. Avoid complicated superscripts and subscripts. Avoid repetition of complicated expression by representing it by a symbol.
- 6. Letters to the Editor, Review articles and Booklets on recent topics will also be published.
- Fifty copies of reprints of each paper, except review articles and booklets are given free of cost to the contributor.

All communications to the Secretary, Institute of Theoretical Physics, Bignan Kutir, 4/1, Mohan Bagan Lane, Calcutta-700004.

Subscription Rates (net)

Per volume Rs. 30'00 (Inland) Single copy Rs 10'00 (Inland)

Rs. 56'00 \ \$ 8'00 \ (Foreign) , Rs. \$

", Rs. 20'00 (Foreign)

Back Volume Rates (net)

Back volumes at Rs. 80.00 or \$ 10.00 per volume

Indian Journal of Theoretical Physics is published quarterly in March, June, September and December.

214

VOLUME 21

CONTENTS

March

	Page
Relativity in the material world and generalised	
Lorentz equation	
-K. C. Kar and A. K. Bhattacharyya	1
Draining of a powerlaw liquid down a vertical plate	
in the presence of a transverse magnetic field	
—Dipak Kumar Dutta	15
Whistler mode propagation in the ionosphere in	
the presence of a longitudinal static electric field	
—D. C. Agarwal	25
A note on the thermal bending of a solid elastic	
circular plate with fixed edge due to a concentrated	
heat nucleus at the centre of the upper face, the	
lower face being thermally insulated	
—J. C. Misra	35
June	
Cerenkov radiation from disturbed ionosphere	
—D. C. Agarwal and S. K. Jain	41
On the mechanical response in a semi-conducting	
transducer	
—Ashis Kumar Pal	49
Propagation of explosion wave in a tube	
—S. K. Ghosh and Debadideb Bhattacharya	53
Torsional vibration of a thin visco-elastic rod of	
finite length	
_Kanchanlal Majumdar	58

September

	Page
Mechanical stress response in a piezo-electric plate transducer corresponding to voltage imput	
-S. K. Ghosh and Debadideb Bhattacharya	65
Propagation of love waves in a heterogeneous layer	
resting on different types of bases	17.4
—Subhas Dutta	71
Stability of a low pressure plasma	=0
—D. C. Agarwal	79
A note on vibration of a piezo-electric flexural vibrator	
-S. Mukherjee	89
Book Reviews	95
December	
Ion distribution in martian atmosphere	
—D. C. Agarwal	97
On unsteady flow of a visco-elastic fluid with	
impulsive pressure gradient acting at any point of	
a section	
—Dipak Kumar Dutta	109
Study of the dislocation damping in solid	
—Debadideb Bhattacharya and S. K. Ghosh	119
Note on the deflection of a visco-elastic rectangular	
plate of Reiss type due to an impulsive load in the	
presence of a transverse magnetic field	
—Bani Pramanik	129
Letter to the Editor	135
Book Review	137
A CONTROL OF THE PROPERTY OF T	101