

PROCEEDINGS
OF THE
ROYAL SOCIETY OF LONDON

SERIES A. MATHEMATICAL AND PHYSICAL SCIENCES

VOL 260

Published by the Royal Society
Burlington House
Piccadilly
London, W. 1

21 March 1961

*Printed in Great Britain at the University Press, Cambridge
(Brooke Crutchley, University Printer)*

SERIES A VOLUME 260

No. 1300. 7 February 1961

	PAGE
Transfer of the unsaturated helium π film. By D. F. Brewer and K. Mendelssohn, F.R.S.	1
Acidity constants in the triplet state. By G. Jackson and G. Porter, F.R.S.	13
Heat transfer between solids and liquid helium π . By L. J. Challis, K. Dransfeld and J. Wilks	31
The velocity of light in a transverse magnetic field. By R. V. Jones	47
Singular hypersurfaces of order one in relativistic magneto-fluid-dynamics. By G. L. Saini	61
A magneto-hydrodynamic Stokes flow. By N. Riley	79
Kinetics and mechanisms of the thermal decomposition of ethane. I. The un- inhibited reaction. By K. J. Laidler and B. W. Wojciechowski	91
Kinetics and mechanisms of the thermal decomposition of ethane. II. The reaction inhibited by nitric oxide. By K. J. Laidler and B. W. Wojciechowski	103
The friction and diffusion coefficients of the Fokker-Planck equation in a plasma. By J. Hubbard	114
A non-linear field theory. By T. H. R. Skyrme	127
The vibrational spectra of disordered chains. By J. L. Martin	139

No. 1301. 21 February 1961

A DISCUSSION ON PROBLEMS OF STELLAR EVOLUTION
UNDER THE LEADERSHIP OF F. HOYLE, F.R.S.

F. D. Kahn. Star formation—a general survey	147
W. H. McCrea, F.R.S. Star formation with special reference to stellar clusters	152
P. A. Sweet. A survey of stellar magnetic problems and of the mixing of material in stars	160
T. G. Cowling, F.R.S. Nuclear reactions in stars	170
L. Mestel. The Hertzsprung-Russell diagram	175
Alla G. Masevich. Evolution of stars decreasing in mass	183
R. van der R. Woolley, F.R.S. A survey of observational problems of stellar evolution	189
F. Hoyle, F.R.S. The age of the galaxy	201
A thermocouple method of following the non-stationary state of chemical reactions. V. The evaluation of velocity coefficients for the propagation and termination reactions for the heterogeneous polymerization of acrylonitrile. By W. I. Bengough	205
The detection of single quanta of circulation in liquid helium π . By W. F. Vinen. (Plate 1)	218
The variation with temperature of the magnetic susceptibility of some of the transition elements. By H. Kojima, R. S. Tebble and D. E. G. Williams	237
Nucleation and growth of twins in dislocation-free zinc crystals. By P. B. Price. (Plates 2 to 7)	251
Vibrational spectra of diatomic chains. II. By P. Dean	263
The deuteration of some cyclic olefins on iron and other transition metal films. By J. Erkelens, A. K. Galwey and C. Kemball	273

	PAGE
No. 1302. 7 March 1961	
The production of vibrationally excited hydroxyl radicals under isothermal conditions by flash photolysis. By N. Basco and R. G. W. Norrish, F.R.S. (Plates 8 to 12)	293
Some Sylow subgroups. By L. G. Kovács, B. H. Neumann, F.R.S. and H. de Vries	304
The pyrolysis of acetaldoxime. By G. L. Pratt and J. H. Purnell	317
The surface impedance of normal and superconducting indium at 3000 Mc/s. By P. N. Dheer	333
The thermoelectric power of ionic crystals. I. Theoretical. By A. R. Allnatt and P. W. M. Jacobs	350
Dichroism and birefringence of single crystals of cadmium selenide. By W. Wardzynski. (Plate 13)	370
Theory of electron correlation in atoms and molecules. By Oktay Sinanoğlu	379
The numerical solution of differential equations governing the reflexion of long radio waves from the ionosphere. IV. By D. W. Barron	393
Dielectric properties of the adsorbate at low surface coverages. By D. Fiat, M. Folman and U. Garbatski	409
The thermal isomerization of 1.2-dimethylcyclopropane. II. Structural isomerization. By M. C. Flowers and H. M. Frey	424
No. 1303. 21 March 1961	
Deformation, heating and melting of solids in high-speed friction. By F. P. Bowden, F.R.S. and P. A. Persson. (Plates 14 to 17)	433
Fluorescence and vibrational relaxation of nitric oxide studied by kinetic spectroscopy. By N. Basco, A. B. Callear and R. G. W. Norrish, F.R.S. (Plates 18 to 21)	459
Optical studies of spirals on synthetic quartz crystals. By M. S. Joshi and S. Tolansky, F.R.S. (Plates 22 to 24)	475
The mathematical theory of capillarity. I. By F. C. Goodrich	481
The mathematical theory of capillarity. II. By F. C. Goodrich	490
The mathematical theory of capillarity. III. By F. C. Goodrich	503
Spectroscopy at extreme infra-red wavelengths. I. Technique. By D. Bloor, T. J. Dean, G. O. Jones, D. H. Martin, P. A. Mawer and C. H. Perry. (Plate 25)	510
Electric charge transfer associated with temperature gradients in ice. By J. Latham and B. J. Mason	523
Generation of electric charge associated with the formation of soft hail in thunderclouds. By J. Latham and B. J. Mason	537
The thermochemistry of reductions caused by lithium aluminium hydride. I. The C—I bond dissociation energy in CH ₃ I. By A. S. Carson, W. Carter and J. B. Pedley	550
The structure of bacterial flagella: the packing of the polypeptide chains within a flagellum. By R. E. Burge	558
Index	574