

Contents

Part I	Physics and Astrophysics	
<hr/>		
Magnetic Intermittency By S.A. Molchanov, A.A. Ruzmaikin, and D.D. Sokoloff (With 2 Figures)		2
The Large Scale Structure of the Universe, the Burgers Equation and Cellular Structures By S. Gurbatov, A. Saichev, and S. Shandarin (With 3 Figures)		9
Generation of Observation Turbulence Spectrum and Solitary Dipole Vortices in Rotating Gravitating Systems By V.V. Dolotin and A.M. Fridman (With 4 Figures)		22
Nonlinear Dynamics of Particle-Like Solutions of Inhomogeneous Fields By I.S. Aranson, K.A. Gorshkov, A.S. Lomov, and M.I. Rabinovich (With 18 Figures)		44
The Turbulent Alfvén Layer By V. Yu. Trakhtengerts (With 2 Figures)		73
Frequency Selfconversion and Reflectionless Propagation of a Powerful Electromagnetic Pulse in an Ionized Medium By V.B. Gil'denburg, A.V. Kim, V.A. Krupnov, and V.E. Semyonov (With 1 Figure)		79
Nonlinear Stability of an Ideal Plasma By V.A. Gordin and V.I. Petviashvili		85
Dynamics of a High-Frequency Streamer By V.B. Gil'denburg, I.S. Gushin, S.A. Dvinin, and A.V. Kim (With 3 Figures)		91
The Propagation of the Front of Parametrically Excited Capillary Ripples By P.A. Matusov and L.Sh. Tsimring (With 4 Figures)		98
Nonlinear Surface and Internal Waves in Rotating Fluids By L.A. Ostrovsky and Yu.A. Stepanyants (With 12 Figures)		106
A Note on the Mechanism of the Resonant Nonlinear Instability in Boundary Layers By V.P. Reutov		129

Stability of Quasi-Two-Dimensional Shear Flows and Jets in Rotating Fluids By F.V. Dolzhansky and D.Yu. Manin (With 5 Figures)	133
On One Solution of the Nonlinear Problem of Electrodynamics By A.G. Eremeev and V.E. Semenov (With 2 Figures)	139

Part II Quantum Physics, Physics of the Solid State

Phenomenological Quantum Electrodynamics of Active Media and Superradiance By V.V. Kocharovsky and Vl.V. Kocharovsky (With 6 Figures)	146
Light Amplification by a Three-Level Atomic System Without Population Inversion By Ya.I. Khanin and O.A. Kocharovskaya (With 2 Figures)	162
On the Nonlinear Critical State Dynamics in Type II Superconductors By I.L. Maksimov	169
Nonlinear Dynamics of Electrons in Metals By V.Ya. Demikhovskiy (With 1 Figure)	179
The Outlook for Solid-State Lasers in the Laser Market By I.G. Zubarev, G.A. Pasmanik, V.G. Sidorovich, and E.I. Shklovskiy (With 1 Figure)	189
Autowave Mechanism in Low-Temperature Chemistry of Solids By V.V. Barelko, I.M. Barkalov, V.I. Goldanskii, A.M. Zanin, and D.P. Kiryukhin (With 6 Figures)	206
Coherent Amplification of Weak Pulses By S.P. Bondarev	219
Nonlinear Dynamics and Kinetics of Magnons By V.S. L'vov	224
The Nonlinear Dynamics of Wave Systems with Spatio-Temporal Collapses By A.G. Litvak, V.A. Mironov, and A.M. Sergeev (With 4 Figures)	240

Part III Dynamical Chaos and Self-Organization

The Destiny of the Universality Hypothesis in the Theory of Developed Wave Turbulence By G.E. Fal'kovich	256
Renormalization Chaos in Period Doubling Systems By S.P. Kuznetsov (With 10 Figures)	262
On Resonances, Pendulum Equations, Limit Cycles and Chaos By A.D. Morozov (With 5 Figures)	276

Synergetics. New Trends By S.V. Ershov, S.P. Kurdyumov, G.G. Malinetskii, and A.B. Potapov (With 7 Figures)	283
Cellular Automata as Dynamical Systems By V.S. Afraimovich and M.A. Shereshevskii	296
An Approach to the Computation of the Topological Entropy By A.L. Zheleznyak (With 4 Figures)	301
Stochastic Dynamics of Pattern Formation in Discrete Systems By V.A. Antonets, M.A. Antonets, and I.A. Shereshevsky (With 4 Figures)	307
Chaos and Period Adding Sequence in a Microwave Oscillator with a Ferrite Resonator By N.F. Rul'kov (With 3 Figures)	316
Subject Index	321
Index of Contributors	325