

Contents

Preface	7
Physics	
L. Chlad and A. Kugler, Using HADES Spectrometer for Neutron Detection, f-10	9
T. Nosek, Effects of Matter in Neutrino Oscillations and Determination of Neutrino Mass Hierarchy at Long-baseline Experiments, f-9	15
J. Blažek, Using the FRAM Telescope for Identification of Potential Candidates of Anomalous Cosmic Ray Showers, f-9	21
T. Kadavý, K. Kampf, and J. Novotný, OPE for the Three-point Green Functions of Currents in the Odd-intrinsic Parity Sector of QCD, f-9	27
O. Bezshyyko, O. Fedorchuk, L. Golinka-Bezshyyko, I. Kadenko, V. Krylov, V. Rodin, S. Barsuk, L. Burmistrov, V. Krylov, V. Kubytksyi, H. Monard, A. Variola, D. Attie, P. Colas, M. Titov, A. Chaus, R. Lopez, D. Tomassini, LEETECH Platform of Quasimonoenergetic Electrons with Picosecond Time Resolution: First Experimental Results, f-9	33
J. Kubíček and A. Pravdová, The Optical Matrix of Type III Einstein Spacetimes in Six Dimensions, f-1	37
M. Vraštil, Atmospheric Calibration for the Cherenkov Telescope Array, f-1	42
P. Mészáros, Effect of Radiation-like Solid on CMB Anisotropies, f-1	47
V. V. Sagun, K. A. Bugaev, A. I. Ivanytskyi, D. R. Oliinychenko, Evidence of the Mixed Phase Formation in Nucleus–Nucleus Collisions, f-1	53
A. I. Ivanytskyi, K. A. Bugaev, V. V. Sagun, D. R. Oliinychenko, Geometrical Clusterization in SU(2) Gluodynamics and Liquid–gas Phase Transition, f-1 ..	59
O. Hruška and J. Podolský, Kundt Spacetimes in the Gauss–Bonnet Gravity, f-1	66
G. Busch, Correlations Between Supermassive Black Holes and Their Hosts in Active Galaxies, f-1	72
A. Pitňa, J. Šafránková, Z. Němeček, Relaxation of Turbulence Behind Interplanetary Shocks, f-2	80
K. Grygorov, J. Šafránková, Z. Němeček, and L. Přech, Magnetopause Shape Under a Radial Interplanetary Magnetic Field, f-2	86
J. Fišer and J. Chum, Seasonal Variation in Propagation Directions of Acoustic Gravity Waves in the Thermosphere, f-2	92
H. Zemanová, O. Santolík, and I. Kolmašová, Measurements of Electromagnetic Signals Generated by Lightning and Atmospheric Discharges Associated with Transient Luminous Events, f-2	97
A. Kuznetsov and I. Mursenkova, Investigating the Nanosecond Combined Volume Discharge in Motionless Air and in Airflow with Shock Wave, f-2	103
M. Vyšinka, L. Nouzák, J. Pavlů, J. Lavková, Z. Němeček, and J. Šafránková, A Study of Melamine Formaldehyde Microspheres Under Electron and Ion Bombardments, f-2	108

A. Kovalenko, Š. Roučka, T. D. Tran, S. Rednyk, R. Plašil, J. Glosík, Reaction of NH_2^+ with H_2 in the rf Ion Trap Between 100 K and 300 K, f-2	116
S. Rednyk, Š. Roučka, A. Kovalenko, T. D. Tran, R. Plašil, and J. Glosík, Study of the $\text{NH}^+ + \text{H}_2$ Reaction Using 22-Pole Ion Trap at Low Temperatures, f-2	121
T. D. Tran, D. Mulin, Š. Roučka, S. Rednyk, A. Kovalenko, R. Plašil, and J. Glosík, Reaction $\text{OD}^- + \text{H}_2 \rightarrow \text{OH}^- + \text{HD}$ at Low Temperatures, f-2	126
P. Ondáč, A. Mašláni, and M. Hrabovský, Arc-Anode Attachment Area in DC Arc Plasma Torch at Low Pressure, f-2	132
M. J. Morávek, A. Kaňka, V. Hrachová, J. Čáp, Determination of Concentration of Excited Oxygen Particles by Optical Emission Spectroscopy, f-2	137
M. Laca, M. J. Morávek, L. Schmiedt, V. Hrachová, A. Kaňka, Continuous Model of the Positive Column in DC Discharge, f-2	144
M. Zanáška, C. Denker, R. Hippler, H. Mohamad, C. Helm, M. Münzenberg, M. Medvidov, M. Delcea, Optimisation of Ion Beam Etching Process for Fabrication of CoFeB/MgO Magnetic Tunnel Junctions, f-2	150
A. Kolpaková, A. Shelemin, J. Kousal, P. Kudrna, M. Tichý, and H. Biederman, Langmuir Probe Diagnostic in Gas Aggregation Cluster Source, f-2	155
P. Vondracek, J. Horacek, R. Panek, P. Vondracek, E. Gauthier, Infrared Measurements in Medium and Long Wavelength on COMPASS, f-2	161
J. Hulík, F. Antoni, F. Aweke, N. Aziz, D. Muller, F. Le Normand, P. Veis, Preparation and Study of Graphene-based Films Produced on Diamond-like Carbon (DLC), f-5	166
P. Kaushik, A. Bannov, O. Jašek, J. Prášek, L. Zajíčková, Carbon Nanotubes Grown by Microwave Torch for Ammonia Gas Detection, f-5	171
M. Brajer, Š. Svoboda, V. Novák, From Silicon to Antiferromagnetic Semiconductors, f-13	176
K. Václavová, J. Stráský, P. Harcuba, M. Janeček, J. Čížek, S. Gatina, V. Polyakova, I. Semenova, Microhardness and Defect Evolution in Metastable Beta-titanium Alloys Processed by High Pressure Torsion, f-3	182
D. Nikitin, M. Vaidulych, I. Gordeev, J. Hanuš, A. Choukourov, D. Slavínská, H. Biederman, Silver Oxide and Copper Oxide Nanoparticles as Perspective Antibacterial Agents in Plasma Polymer-Based Nanocomposites, f-4	188
D. Kravchenko, K. Ogorodnik K, Yu. Myagchenko, Scattering of Light During the Mutarotation in the Solutions of the Glucose, f-4	193
J. Kratochvíl, M. Petr, A. Kuzminova, J. Hanuš, O. Kylián, Gradient Thin Films for Biomedical Applications, f-4	197
M. Riabchikova, V. Gibizova, G. Petrova, Interaction of γ-Globulin and FeCl_3, f-4	204
J. Bocková, M. Suchoňová, P. Veis, L. Harmatha, J. Yu, Characterization of Laser-induced Plasma for Quantitative Analysis of Wines, f-4	209
A. V. Kharcheva and A. A. Zhiltsova, Studies of Green Sulphur Bacteria Using Spectral Methods: Comparison of Fluorescence and Absorption Characteristics in Winter and Summer, f-4	214

J. Skořepa , Divergence of Nearby Trajectories in Phase Space for Simulated and Observed Series, f-8	219
E. Maringová , Variational Problems With Linear Growth — Regularity up to the Boundary in Non-Convex Domains, f-11	227
O. O. Sidorov , N. V. Bashmakova, V. M. Yashchuk, W. Kasprzyk, S. Bednarz, and D. Bogdal, Spectral Properties of Novel Fluorophores Synthesized from Citric Acid and Their Solutions with DNA, f-6	233
M. Roskot , Student's Conceptual Ideas in Physical Optics, f-12	239