

## CONTENTS

<b>Foreword</b> .....	<b>1545</b>
<b>Сисакян А. Н.</b>	
<b>Жизнь и деятельность Н. Н. Боголюбова</b> .....	<b>1547</b>

### PLENARY SESSION

<i>Araki H.</i>	
<b>Dynamics and Potentials</b> .....	<b>1557</b>
<i>Arč'eva I. Ya.</i>	
<b>Catalysis of Black Holes/Wormholes Formation in High-Energy Collisions</b> .....	<b>1562</b>
<i>Ebert D., Faustov R. N., Galkin V. O.</i>	
<b>Low-Energy Properties of Hadrons in the Relativistic Quark Model</b> .....	<b>1579</b>
<i>Erler J., Kleinig W., Klüpfel P., Kvasil I., Nesterenko V. O., Reinhard P.-G.</i>	
<b>Self-Consistent Mean-Field Description of Nuclear Structure and Dynamics — A Status Report</b> .....	<b>1588</b>
<i>Jansen K.</i>	
<b>The Quest for Solving QCD: Simulations at Light Quark Masses</b> .....	<b>1597</b>
<i>Shaposhnikov M.</i>	
<b>Cosmology versus Standard Model</b> .....	<b>1606</b>
<i>Stoitsov M.</i>	
<b>Nuclear Density Functional Theory</b> .....	<b>1616</b>
<i>Voronov V. V., Jolos R. V., Arsenyev N. N., Severyukhin A. P.</i>	
<b>Pair correlations and the Time-Dependent Hartree-Fock-Bogoliubov Method in the Theory of Nuclear Structure</b> .....	<b>1626</b>
<i>Yngvason J.</i>	
<b>The Interacting Bose Gas: A Continuing Challenge</b> .....	<b>1638</b>
<i>Zagrebnov V. A.</i>	
<b>Boson Random Point Processes and Condensation</b> .....	<b>1649</b>

**SESSION «QUANTUM FIELD THEORY  
AND THEORY OF ELEMENTARY PARTICLES»**

*Achasov N. N.*

**Light Scalar Mesons as Manifestation of Spontaneously  
Broken Chiral Symmetry** ..... 1663

*Andrianov A. A., Andrianov V. A., Espriu D.*

**Parity Violation in QCD-Motivated Hadronic Models  
at Extreme Conditions** ..... 1672

*Arbuzov B. A., Volkov M. K.*

**Bogoliubov Compensation Approach in QCD and  
in the Electroweak Theory** ..... 1681

*Бакулев А. П.*

**Пересуммирование в дробно-аналитической теории  
возмущений КХД** ..... 1688

*Bednyakov A. V.*

**Three-Loop Running of the Strong Coupling Constant and  
the Mass of the  $b$  Quark in the Supersymmetric QCD** ..... 1696

*Bogolubov N. N. (Jr.), Prykarpatsky A. K.*

**The Vacuum Structure and Special Relativity Revisited:  
A Field Theory No-Geometry Approach within the Lagrangian  
and Hamiltonian Formalisms** ..... 1702

*Blaschke D., Buballa M., Radzhabov A. E., Volkov M. K.*

**Nonlocal Quark Model beyond Mean Field** ..... 1718

*Bulavin L. A., Jenkovszky L. L., Troshin S. M., Tyurin N. E.*

**Critical Phenomena in High-Energy Lepton- and  
Hadron-Induced Reactions** ..... 1724

*Selyugin O. V., Cudell J.-R.*

**Asymptotics of  $S$  Matrix and Unitarization** ..... 1731

*Ebert D., Faustov R. N., Galkin V. O.*

**Masses of Heavy Tetraquarks with Hidden Charm and Bottom** ..... 1736

*Fadin V. S., Fiore R., Grabovsky A. V., Papa A.*

**Low- $x$  Evolution Equations in Möbius Representation** ..... 1742

*Gasser J., Haefeli Ch., Ivanov M. A., Schmid M.*

**Relations between  $SU(2)$ - and  $SU(3)$ -LECs  
in Chiral Perturbation Theory** ..... 1749

*Kalmykov M. Yu., Kniehl B. A.*

**All-Order  $\varepsilon$  Expansions of Hypergeometric Functions  
of One Variable** ..... 1754

<i>Kataev A. L., Kim V. T.</i> <b>Peculiar Features of the Relations between Pole and Running Heavy-Quark Masses and Estimates of the <math>O(\alpha_s^4)</math> Contributions</b> .....	1760
<i>Kotikov A. V.</i> <b>The Property of Maximal Transcendentality in the <math>\mathcal{N} = 4</math> SYM</b> .....	1768
<i>Kozlov G. A.</i> <b>Unparticles in Gauge Theory</b> .....	1773
<i>Kozlov G. A.</i> <b>The Gauge Unparticles («Un gluons»)</b> .....	1779
<i>Krasnikov N. V.</i> <b>Fields with Continuously Distributed Mass</b> .....	1788
<i>Das C. R., Laperashvili L. V., Tureanu A.</i> <b>Astrophysical Implications of the Superstring-Inspired <math>E_6</math> Unification and Shadow Theta-Particles</b> .....	1793
<i>Mir-Kasimov R. M.</i> <b>Generating Function for Extended Jacobi Polynomials, Noncommutative Differential Calculus and Relativistic Energy and Momentum Operators</b> .....	1800
<i>Mnatsakanova M. N., Vernov Yu. S.</i> <b>Reconstruction Theorem and Cluster Properties of Wightman Functions in Noncommutative Quantum Field Theory</b> .....	1806
<i>Reshetnyak A. A.</i> <b>Towards Lagrangian Formulations of Mixed-Symmetry Higher Spin Fields on AdS-Space within BFV-BRST Formalism</b> .....	1812
<i>Sissakian A., Shevchenko O., Ivanov O.</i> <b>QCD Analysis of DIS and SIDIS Data</b> .....	1819
<i>Slavnov D. A.</i> <b>Double-Slit Experiment and Bogoliubov's Causality Principle</b> .....	1825
<i>Stępień L. T.</i> <b>On Some Classes of Exact Solutions of Scalar Born-Infeld Equation</b> .....	1831
<i>Surovtsev Yu. S., Branž T., Gutsche T., Lyubovitskij V. E.</i> <b>The Model-Independent Analysis Indications for Spectroscopy of Scalar Mesons. Proof for the <math>K_0^*(900)</math></b> .....	1836
<i>Tsirova N. A., Karmanov V. A., Mathiot J.-F.</i> <b>Structure of the Nucleon in Chiral Effective Theory on the Light Front</b> .....	1842