



# *Bogoliubov Laboratory of Theoretical Physics*



**Dubna International Advanced  
School of Theoretical Physics**

Rector: A.T. Filippov

Leaders: A.S. Sorin, V.V. Voronov

There are several other members of the DIAS team working on all aspects of organizing the concrete schools.

The program started in the beginning of 2000,  
It was completely formalized from 2004.

*The more complete information can be found on the site of BLTP*

# International Workshop and School Quantum Gravity and Superstrings Dubna, Russia, June 18 -- June 28, 2001

Supported by BMBF (Germany), INTAS, RFBR (Russia), UNESCO, Heisenberg-Landau Program, Bogoliubov-Infeld Program

- M-theory and strings
- Extra dimensions and branes
- Integrable models in quantum gravity and gauge theories
- Noncommutative geometry and field theory

The third International Workshop "Quantum Gravity and Superstrings" will be organized at Bogoliubov Laboratory of Theoretical Physics on June 18 - 24, 2001. Parallel to it, from June 18 till June 28, will be held the International School on Noncommutative Geometry and Field Theory. The Workshop will follow immediately after the IXth International Conference "Supersymmetry and Unification of Fundamental interactions", June 11 - 17.

## **International Advisory Committee:**

**V. deAlfaro (Torino University, Torino)**

**L. Alvarez-Gaume (CERN, Geneva)**

**V. Kadyshevsky (JINR, Dubna)**

**V. Kazakov (ENS, Paris)**

**O. Lechtenfeld (Hannover University, Hannover)**

**D. Luest (Humboldt University, Berlin)**

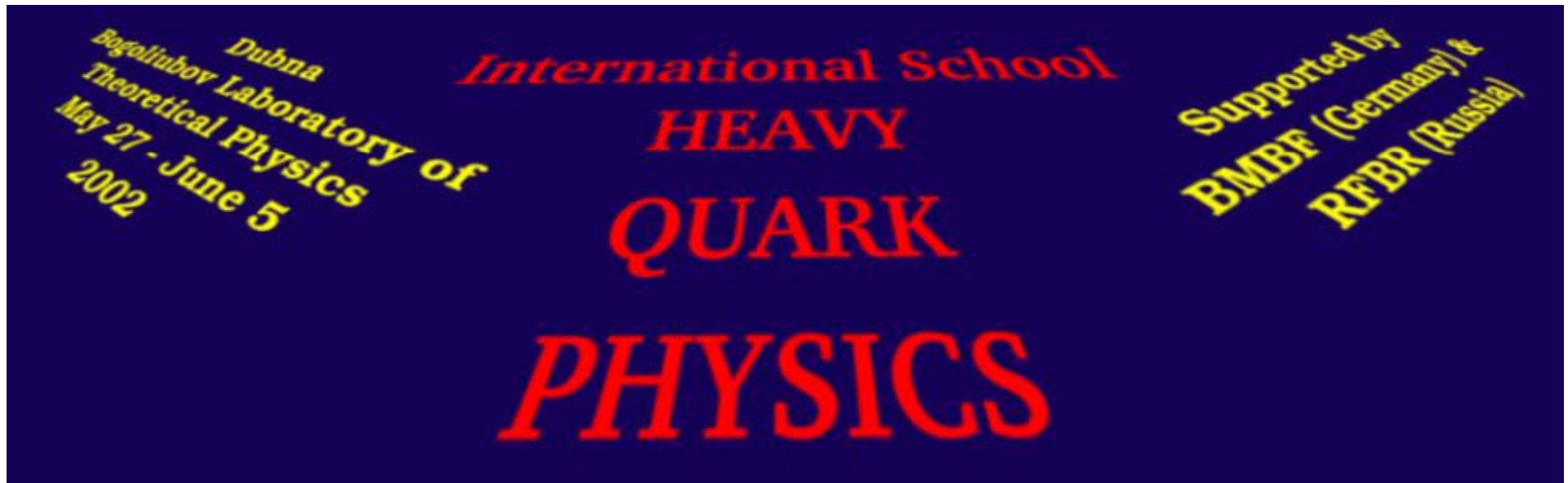
**D. Maison (Max Planck Physics Institute, Munich)**

**A. Morozov (ITEPh, Moscow)**

**H. Nicolai (AEI, Potsdam, Germany)**

**V. Rubakov (INR, Moscow)**

**J. Wess (Max Planck Physics Institute, Munich) --**coordinator of the School****

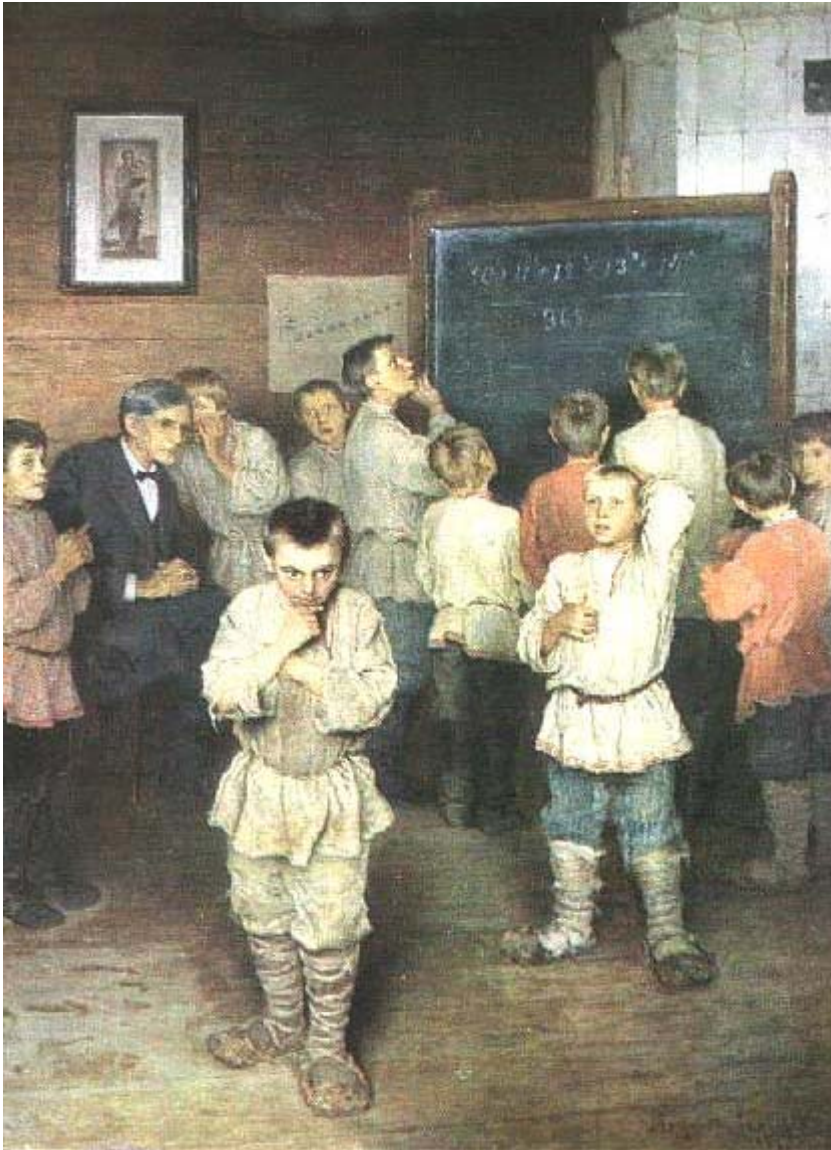


### Lecturers include

R. Fleischer (DESY) S. Gerasimov (Dubna) A. Grozin (Novosibirsk)  
B. Kopeliovich (Dubna & Heidelberg) J. Körner (Mainz) Th. Mannel (Karlsruhe)  
I. Narodetskii\* (Moscow) M. Neubert (Cornell) A. Pivovarov (Moscow)  
C.D. Roberts (Argonne) U. Rückl (Würzburg) H. Schröder\* (Rostock)

### Program includes

Production and Decays of heavy hadrons  
CKM matrix, CP violation and Beyond the Standard Model  
Lattice QCD and Effective Field Theories  
Dyson-Schwinger equations, Quark Models and Sum Rules



School on Modern Mathematical Physics  
July 11-22 2003, Dubna

SUSY, SUGRA, Superstrings  
Quantum Gravity and Black Holes,  
Modern Cosmology,  
Noncommutative  
Geometry and Physics

Supported by:  
BMBF, HL, BI, BV



Supported by



Supporting  
up to 2005



In 2008, we have received the grant in the framework of the UNESCO International Basic Science Programme

In 2004-2009, the following activities in the framework of DIAS-TH were:

- Winter School on Theoretical Physics (2004--2009);
- International Summer School on Selected Topics in Nuclear Theory (2004);
- Advanced Summer School on Modern Mathematical Physics (2004--2009);
- Research Workshop "Nucleation Theory and Applications" (2004--2009);
- School on Hot Points in Astrophysics and Cosmology (2004);
- School on Heavy Quark Physics (2005, 2008);
- International School on Nuclear Theory and Astrophysical Applications (2005, 2007);
- School and Workshop on Calculations for Modern and Future Colliders (2006, 2009);
- School on Few-Body Problems in Physics (2006);
- School on Dense Matter in Heavy Ion Collisions and Astrophysics (2006, 2008)

Participants of the schools were students, post-graduates and young researches from JINR Member States and other countries. The Schools were supported by UNESCO-ROSTE (up to 2005), Helmholtz Association, the Heisenberg—Landau, Bogoliubov-Infeld and Votruba-Blokhintsev Programmes, RFBR, and Dinastiya Foundation **In 2008, we have received the grant in the framework of the UNESCO International Basic Science Programme.**

**•Dense Matter in Heavy Ion Collisions and Astrophysics**

Organizers: M.Bleicher (Frankfurt), A. Sorin (JINR), D. Blaschke (JINR&U. Wroclaw)

**VIII-th Advanced Summer School on Modern Mathematical Physics  
Dubna, September 5-15, 2010**

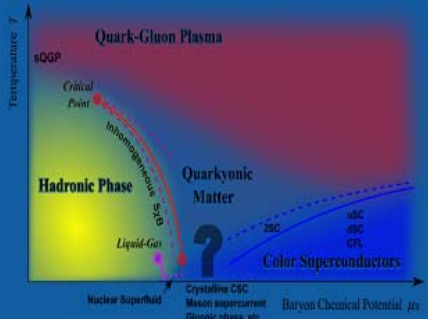
**Gravity, Cosmology, Integrable systems and Supersymmetry**

Organizers: A.Starobinsky (Landau Inst. and JINR), A. Filippov (JINR),

DIAS-TH Dubna International Advanced School for Theoretical Physics  
HIC-for-FAIR School and Workshop

# Dense QCD Phases in Heavy-Ion Collisions

August 21- September 4, 2010 @ Joint Institute for Nuclear Research



Organisers  
M. Bleicher (Frankfurt)  
D. Blaschke (JINR & Wroclaw)

Local Organisers  
T. Donskova (JINR)  
A. Khvorostukhin (JINR)  
E. Kolganova (JINR)  
A. Sorin (JINR)  
D. Zablocki (Wroclaw)

NONEQUILIBRIUM AND TRANSPORT PHENOMENA IN DENSE MATTER  
QCD PHASES IN COMPACT STARS, SUPERNOVAE AND MERGERS  
EQUATION OF STATE AND QCD PHASE TRANSITIONS  
HADRON PRODUCTION IN HEAVY-ION COLLISIONS

HELMHOLTZ ASSOCIATION  
DUBNA  
HIC for FAIR  
Helmholtz International Center

embracing the 6<sup>th</sup> CPD conference  
warm-up, lectures, progress  
<http://theor.jinr.ru/~dm10>  
[dm10@theor.jinr.ru](mailto:dm10@theor.jinr.ru)



# **Research and education project "Dubna International Advanced School of Theoretical Physics (DIAS-TH)"**

**Proposal to 2010-2016**

The overall objective of the permanently running BLTP project «Dubna International School of Theoretical Physics (DIAS-TH) » is a promotion of educational and training programs at JINR in the field of theoretical physics. The unique feature of DIAS-TH is its coherent integration into the current scientific life of BLTP which ensures regular and natural participation of the leading scientists in the education and training activities.

**This is the formal proposal for prolonging the DIAS project  
that was approved by the JINR Scientific Council**

# Helmholtz International Summer Schools (HISS)

- 2004

- "Hot Points in Astrophysics and Cosmology" (2.-13. 8. 2004);

- 2005

- "Heavy Quark Physics" (6.- 16. 6. 2005);
- "Modern Mathematical Physics" (14. - 26. 7. 2005);
- "Nuclear Theory and Astrophysical Applications" (26.7. - 4.8. 2005);

- 2006

- "Calculations for Modern and Future Colliders" (15.-25.7. 2006);
- "Dense Matter in Heavy-Ion Collisions and Astrophysics" (21.8.-1.9. 2006);

- **2006**

- "Calculations for Modern and Future Colliders" (15.-25.7. 2006);
- "Dense Matter in Heavy-Ion Collisions and Astrophysics" (21.8.-1.9. 2006);

- **2007**

- "Modern Mathematical Physics" (22.-30.7.2007, Filippov);
- "Nuclear Theory and Astrophysical Applications" (7.-17.8.2007; Langanke, Voronov);

- **2008**

- "Dense Matter in Heavy-Ion Collisions" (14.-26.7.2008; Wambach, Voronov, Blaschke);
- "Heavy-Quarks Physics" (11.-21.8.2008; Ali, Ivanov);

- **2009**

- "Calculations for Modern and Future Colliders" (10.-20.7.2009; Kazakov, Riemann);
- "Modern Mathematical Physics" (20.-29.7.2009; Filippov).

# Approved project

1. *Hadron Spectroscopy and Lattice Gauge Theories*

Organizers: R. Sommer (DESY Zeuthen), F. Karsch (GSI-U Bielefeld, BNL), M. Mueller-Preussker (Humboldt Univ.), M. Polikarpov (ITEP Moscow), V. Mitrjushkin (JINR Dubna)

Year: 2011

2. *Nuclear Theory and Astrophysics*

Organizers: K. Langanke (GSI-Darmstadt, TU Darmstadt), V. Voronov (JINR Dubna)

Year: 2011

3. *Cosmology, Strings and New Physics*

Organizers: V. Schomerus (DESY Hamburg), V. Rubakov (INR Moscow), A. Starobinsky (Landau Inst. & JINR Dubna), A. Filippov (JINR Dubna)

Year: 2012

4. *Dense Matter in Heavy-Ion Collisions and Astrophysics*

Organizers: H. Stöcker (GSI-Darmstadt, FIAS), D. Blaschke (JINR Dubna, Uni Wroclaw),  
A.S. Sorin (JINR Dubna)

Year: 2012

5. *Modern Colliders - Theory and Experiment*

Organizers: T. Riemann (DESY Zeuthen), D. Kazakov (JINR Dubna), A. Arbuzov (JINR  
Dubna)

Year: 2013

6. *Physics of Heavy Quarks and Hadrons*

Organizers: A. Ali (DESY Hamburg), K. Peters (GSI Darmstadt), M. Ivanov (JINR Dubna)

Year: 2013

**Joint Institute for Nuclear Research  
Bogoliubov Laboratory of Theoretical Physics**



Dubna International Advanced  
School of Theoretical Physics



**2008**

January 26 – February 5

*VIth Winter School on Theoretical Physics*



April 1 – 30

*XIIth Research Workshop  
on Nucleation Theory and Applications*

July 14 – 26

*Helmholtz International Summer School  
Dense Matter in Heavy Ion Collisions  
and Astrophysics*



August 11 – 21

*Helmholtz International Summer School  
on Heavy Quark Physics*

September 7 – 17

*Advanced Summer School  
on Modern Mathematical Physics*



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DIAS-TH: Dubna International Advanced School of Theoretical Physics  
Helmholtz International Summer School

# Dense Matter in Heavy Ion Collisions and Astrophysics

Bogoliubov Laboratory of Theoretical Physics  
JINR, Dubna, Russia, July 14-26, 2008

## TOPICS:

- Hadrons in the Medium
- Equation of state and Phase Transitions
- Hadron Production and Heavy Ion Collisions
- Dense Matter in Compact Stars
- Future Experimental Facilities

## ORGANIZERS:

- J. Wambach (GSI, TU Darmstadt)
- V. Voronov (JINR)
- D. Blaschke (JINR, U Wroclaw)

## LOCAL ORGANIZERS:

- A. Sorin (JINR)
- J. Schmelzer (U Rostock, JINR)
- V. Zhuravlev (JINR)
- V. Skokov (sc. secretary, JINR)
- A. Dolya (secretary, JINR)

## SUPPORTED BY:

- Helmholtz Association
- Helmholtz Centers DESY and GSI
- Joint Institute for Nuclear Research
- Russian Foundation for Basic Research

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WWW: <http://theor.jinr.ru/~dm2008>



Helmholtz International Summer School  
on

# Modern Mathematical Physics

July 20 - 29, 2009, Dubna, Russia

## Topics

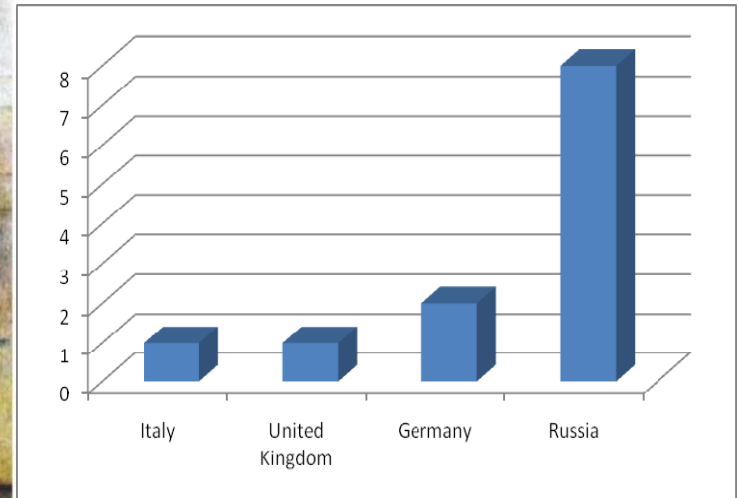
- Supersymmetry
- Superstrings
- Supergravity
- Selected problems of gravity and cosmology



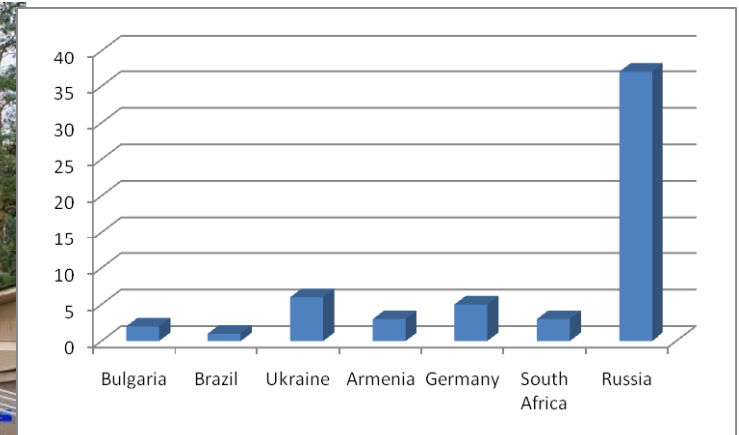
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Prof. A. T. Filippov  
E-mail: [diastp@theor.jinr.ru](mailto:diastp@theor.jinr.ru)  
<http://theor.jinr.ru/~diastp/summer09/main.html>



## Lecturers 12



## Students 57



Joint Institute for Nuclear Research / Bogoliubov Laboratory of Theoretical Physics



VII<sup>th</sup> Winter school on Theoretical Physics  
**Introduction to Theory of Nanostructures**  
*Dubna, January 25 - February 5, 2009*



Topics:

Physics of nanostructures

Carbon nanostructures and related applications

Methods of quantum field theory in problems of nanophysics

**THE**

**END**