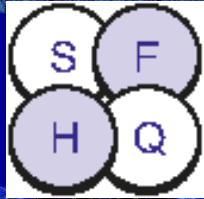


# WELCOME !

## HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

Dubna International Advanced School of Theoretical Physics / DIAS-TH

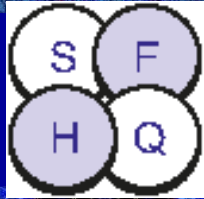


Quantum Field Theory at the Limits:  
From Strong Fields to Heavy Quarks

Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019

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Quantum Field Theory at the Limits:  
From Strong Fields to Heavy Quarks

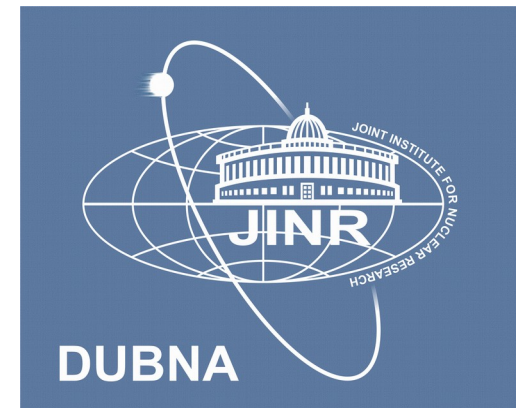
Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019



**GS I**



Karlsruher Institut für Technologie



# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

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## HISS Dubna

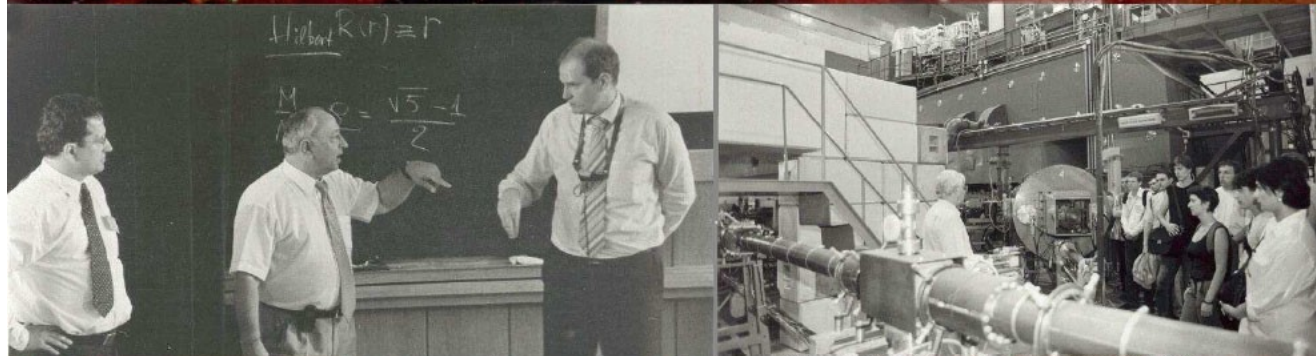
- Created in 2004
- 6 schools in 3 years
- Funding:
  - Helmholtz President
  - DESY + GSI
  - JINR
- 15 Lecturers/ 50 Students
- 10 days + weekend



DUBNA

### The First School: Hot points in Astrophysics (2004)

- 29 Stud. from Russia, Belarus, Armenia, Germany, Italy, Poland, Croatia, Japan
- 25 Students from JINR Dubna
- 13 Lecturers from Russia, Ukraine
- 12 lecturers from Germany, Italy, Poland, Korea, Japan, USA
- Lecture notes printed at JINR Dubna Press



David Blaschke - Helmholtz @ JINR Dubna - 24. June 2008

Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019

# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

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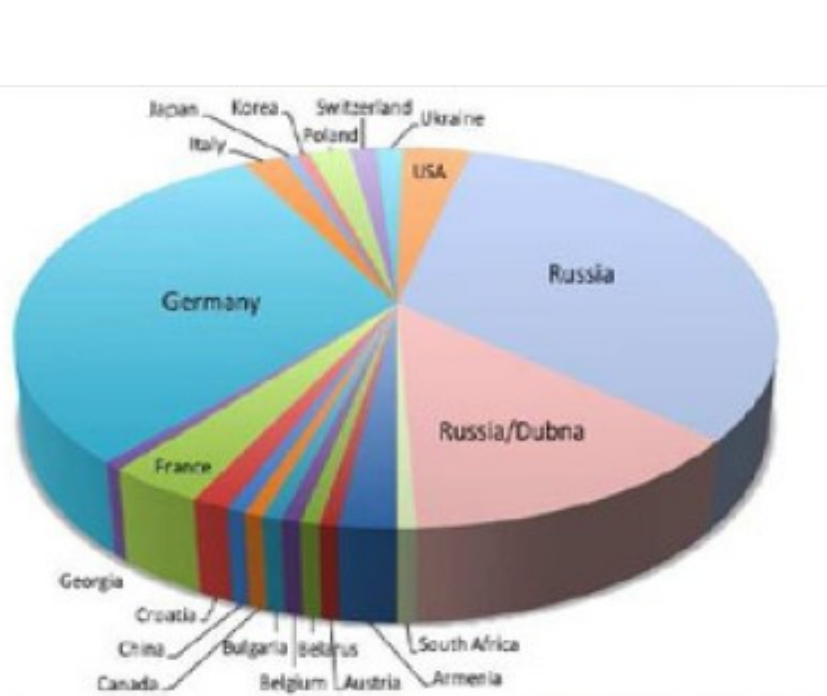
## **Startup Topics from the field “Structure of Matter” (2004 - 2006):**

1. Hot Points in Astrophysics and Cosmology (2004) – Belyaev & Blaschke
2. Heavy Quark Physics (2005) – Ali & Ivanov
3. Modern Mathematical Physics (2005) – Lechtenfeld & Filippov
4. Nuclear Theory and Astrophysical Appl. (2005) – Langanke & Voronov
5. Calculations for Modern & Future Colliders (2006) – Riemann & Kazakov
6. Dense Matter in HIC & Astro. (2006) – Wambach & Blaschke & Voronov

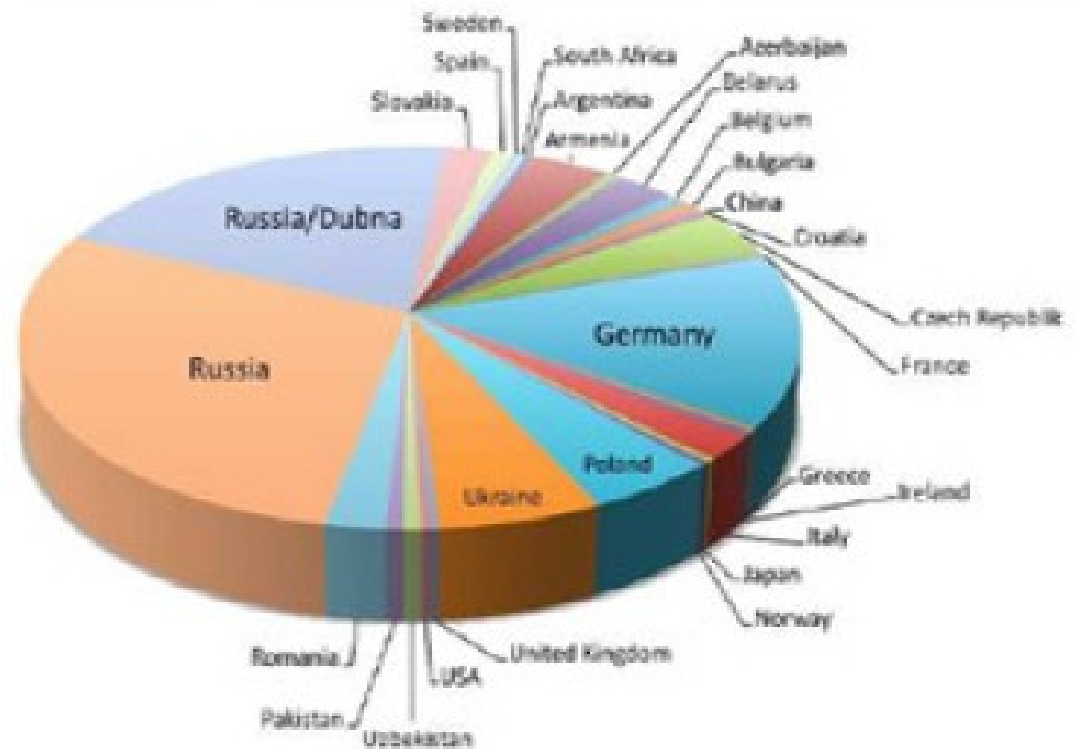
# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

Dubna International Advanced School of Theoretical Physics / DIAS-TH

## Statistics of Six Helmholtz International Summer Schools (2004 - 2006)



Total lecturers: 147



Total Students: 315

Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019

# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

Dubna International Advanced School of Theoretical Physics / DIAS-TH

## JINR Mega-Science Project: NICA

<http://theor.jinr.ru/twiki-cgi/view/NICA/WebHome>



Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019

# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

Dubna International Advanced School of Theoretical Physics / DIAS-TH

## The Present and the Future of HISS Dubna

Cooperation Agreement between Helmholtz Centres  
And Institutes and JINR Dubna (2014 - 2016)



### Cooperation Agreement

between

the Joint Institute for Nuclear Research (JINR) in Dubna, Russian Federation

and

the Deutsches Elektronen-Synchrotron - DESY,

the Facility for Antiproton and Ion Research (FAIR) GmbH Darmstadt with

the FAIR-Russia Research Center (FRRC) in Moscow, Russian Federation,

the Forschungszentrum Jülich GmbH,

the GSI Helmholtz Center for Heavy Ion Research GmbH with

the Helmholtz Institute Jena and the Helmholtz Institute Mainz,

the Helmholtz-Zentrum Dresden - Rossendorf,

the Karlsruhe Institute for Technology

- HCs -

on the

Collaboration in the Planning and Conduction of the HISS Helmholtz  
International Summer Schools in Dubna 2014 – 2016

Dated 04.11.2014

Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019

# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

## Dubna International Advanced School of Theoretical Physics / DIAS-TH

Helmholtz International Summer Schools (HISS) Dubna

### “Structure of Matter under Extreme Conditions”

Scientific Program 2017 – 2019

Status: January 21, 2019

Title: Nuclear Theory and Astrophysical Applications

Organizers: S. Heinz (GSI Darmstadt), V. Voronov (JINR Dubna)

Website: <http://theor.jinr.ru>

Termin: 10.-22.07. 2017

Title: Hadron Structure, Hadronic Matter and Lattice QCD,

Organizers: O. Kaczmarek (Uni Bielefeld), O. Teryaev (JINR Dubna), M. Ilgenfritz (JINR Dubna)

Website: <http://theor.jinr.ru>

Termin: 20.08.-02.09. 2017

Title: Matter under Extreme Conditions in Heavy-Ion Collisions and Astrophysics

Organizers: M. Bleicher (FIAS Frankfurt, HIC-for-FAIR), D. Blaschke (JINR Dubna, Uni Wroclaw), L. Bravina (Uni Oslo), A. Taranenko (NRNU Moscow)

Website: <http://theor.jinr.ru/~diastp/summer18/>

Termin: 20.-31.08. 2018

Title: Modern Colliders - Theory and Experiments

Organizers: D. Kazakov (JINR Dubna), J. Reuter (DESY Hamburg), S. Moch (Uni Hamburg)

Website: <https://indico.jinr.ru/conferenceDisplay.py?confId=418>

Termin: 22.07.-01.08. 2018

Title: Quantum Field Theory at the Limits: From Strong Fields to Heavy Quarks

Organizers: U. Meissner (FZ Jülich), H. Gies (HI Jena), M. Ivanov (JINR Dubna),

D. Blaschke (JINR Dubna, Uni Wroclaw),

Website: <http://theor.jinr.ru/meetings/2019/>

Termin: 22.7.-02.08. 2019

Title: Cosmology, Strings and New Physics

Organizers: B. Kämpfer (HZ Dresden-Rossendorf), F.R. Klinkhamer (KIT Karlsruhe),

I. Pirozhenko, A. Filippov (JINR Dubna), A. Starobinsky (Landau Inst. & JINR Dubna)

Website: <http://indico.jinr.ru/conferenceDisplay.py?confId=736>

Termin: 04.-17.08. 2019

### Cooperation Agreement

between

the Joint Institute for Nuclear Research (JINR) in Dubna, Russian Federation

and

the Deutsches Elektronen-Synchrotron - DESY,

the Facility for Antiproton and Ion Research (FAIR) GmbH Darmstadt with

the FAIR-Russia Research Center (FRRC) in Moscow, Russian Federation,

the Forschungszentrum Jülich GmbH,

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- HCs -

on the

Collaboration in the Planning and Conduction of the HISS Helmholtz  
International Summer Schools in Dubna 2014 – 2016

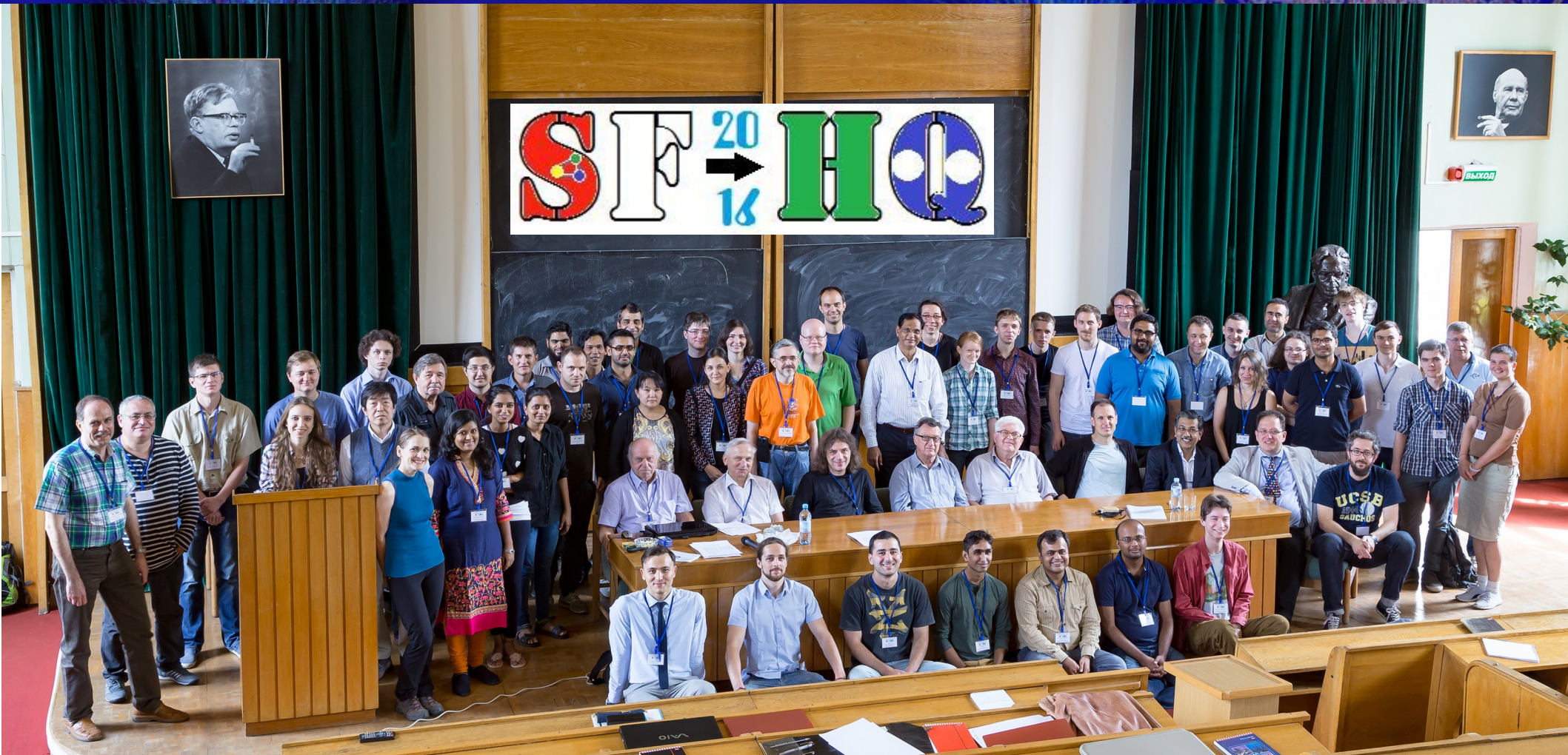
Dated 04.11.2014

Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019



# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

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Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, July 18 – 30, 2016

# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

Dubna International Advanced School of Theoretical Physics / DIAS-TH

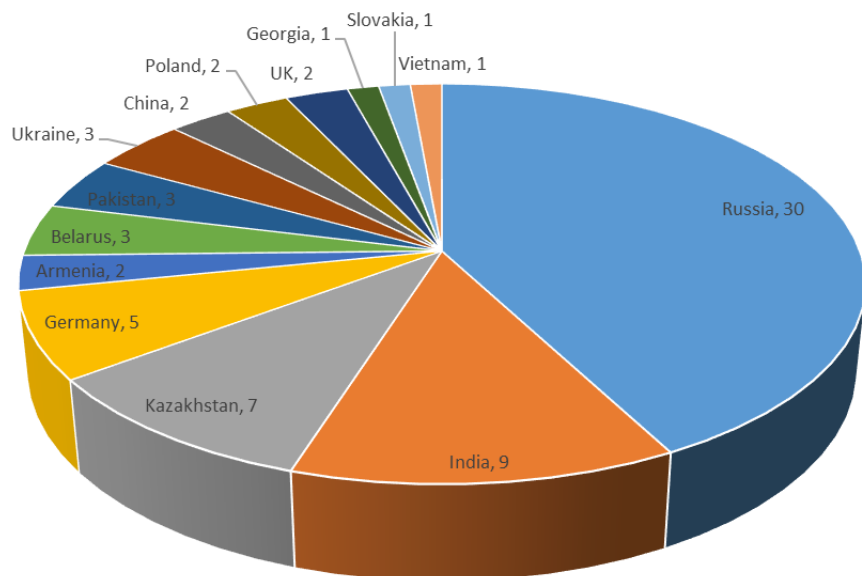


Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019

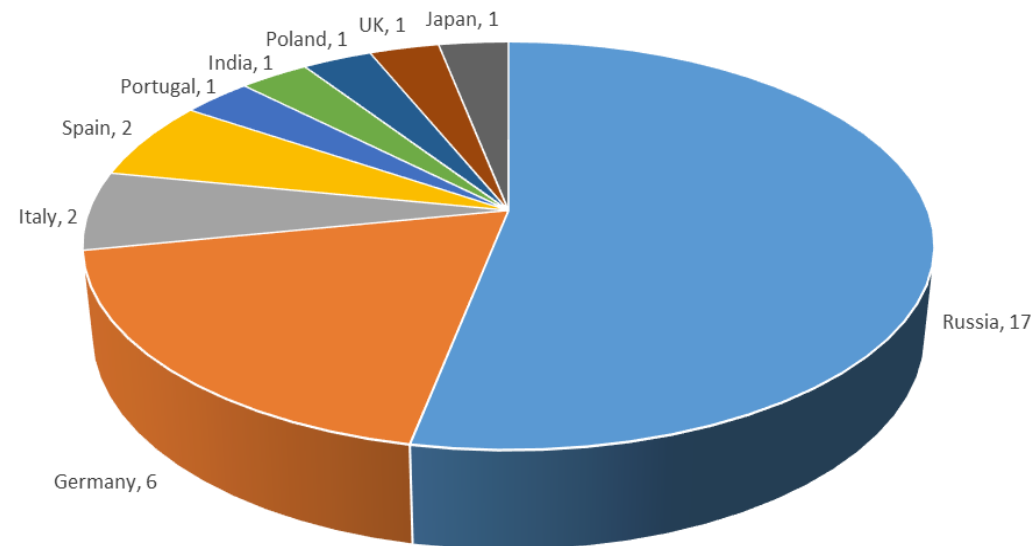
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## Statistics for Quantum Field Theory at the Limits 2016



**Participants - 71**



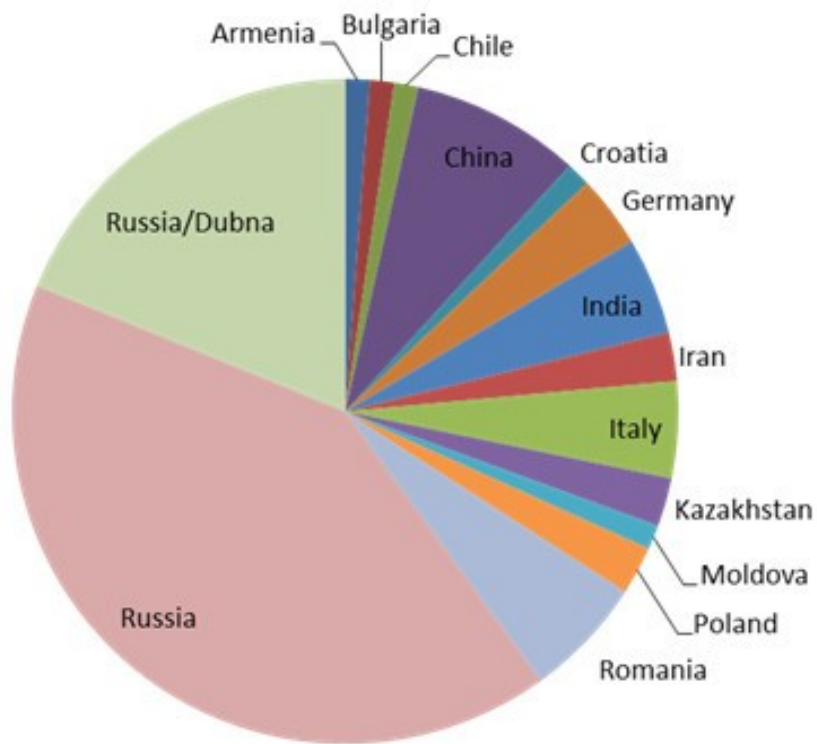
**Lecturers - 32**

Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, July 18 – 30, 2016

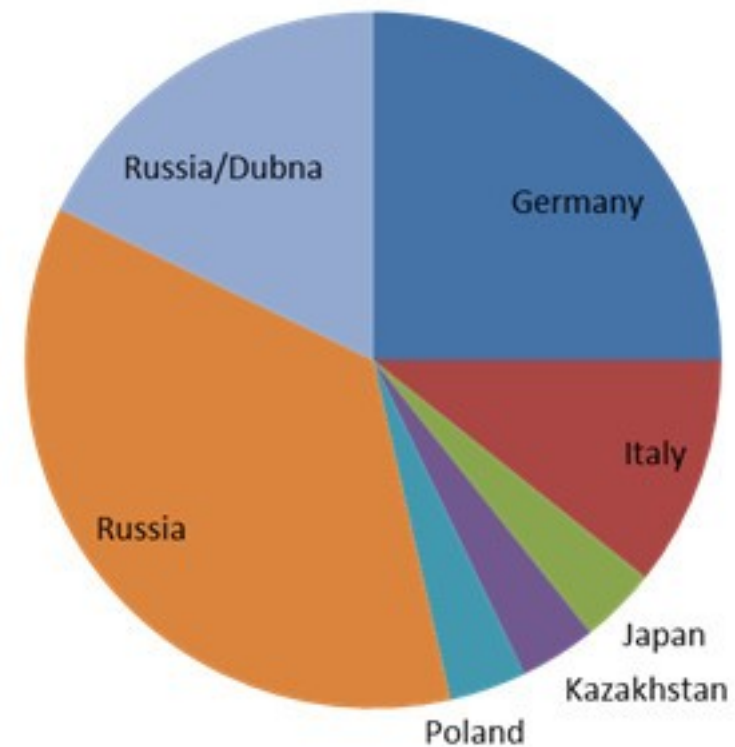
# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

Dubna International Advanced School of Theoretical Physics / DIAS-TH

## Statistics for Quantum Field Theory at the Limits 2019



Participants - 69



Lecturers - 23

Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019

# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

Dubna International Advanced School of Theoretical Physics / DIAS-TH

## Program (first week)

time	Mon, 22	Tue, 23	Wed, 24	Thu, 25	Fri, 26
10:00-11:00	Karbstein	Karbstein	Karbstein	Blaschke	Blaschke
11:00-11:30	break	break	break	break	break
11:30-12:30	Schulze	Schulze	Schulze	Mironov	Mironov
12:30-13:30	Colangelo	Hosaka	Mironov	Kohlfürst	Kohlfürst
13:30-15:00	lunch	lunch	lunch	lunch	lunch
15:00-16:00	Smolyansky	Galkin	Kotikov	Saleev	Melikhov
16:00-16:30	break	break	break	break	break
16:30-17:50	Get together	Excursion	Problem solving	Talk [1-4]	Seminar

Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019

# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

Dubna International Advanced School of Theoretical Physics / DIAS-TH

## Program (second week)

time	Mon, 29	Tue, 30	Wed, 31	Thu, 01	Fri, 02
10:00-11:00	Grozin	Hanhart	Hanhart	Körner	Faustov
11:00-11:30	break	break	break	break	break
11:30-12:30	Hanhart	Grozin	Grozin	Ivanov	Anikin
12:30-13:30	Melikhov	Santorelli	Lyubovitskij	Tran	Closing
13:30-15:00	lunch	lunch	lunch	lunch	lunch
15:00-16:00	Ahmadiniaz	Ahmadiniaz	Ahmadiniaz	Issadykov	
16:00-16:30	break	break	break	break	
16:30-17:50	Talk [5-8]	seminar	talk [9-12]	seminar	

Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019

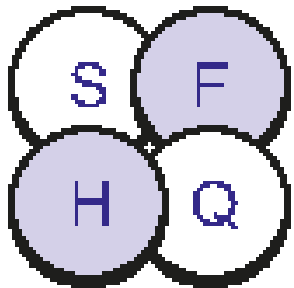


- 1 – Hotel “Dubna”**
- 2 – House of International Meetings**
- 5 – Hotel “Grill”**
- 7 – Restaurant “Old Armenia”**
- 8 – Visit Centre**
- 9 – JINR Labs: BLTP, FLNR, LIT, FLNP, DLNP, LRB**
- 10 – Railway station “Dubna”; Express train to Moscow**

# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

Dubna International Advanced School of Theoretical Physics / DIAS-TH

## The School is opened -



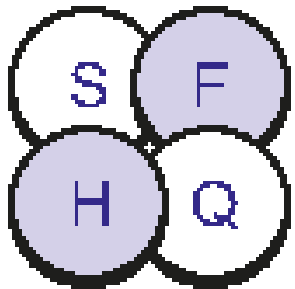
Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019



# HELMHOLTZ INTERNATIONAL SUMMER SCHOOL

Dubna International Advanced School of Theoretical Physics / DIAS-TH

**The School is opened -**



**Enjoy Your Summer School !**



Bogoliubov Laboratory of Theoretical Physics,  
Joint Institute for Nuclear Research, 22 July – 2 August, 2019