



# ***SYMMETRIES AND SPIN***

***(SPIN-Praha-2010)***

***Prague, July 18 - July 24, 2010***

***26-th International Conference of this series - started in 1975 in Dubna and then –from 1976 – traditionally organized in Prague, From 1999 under the name: **Advanced Studies Institute on Symmetries and Spin*****

***Organizers: JINR & Faculty of Mathematics and Physics of Charles University***

***Support: CTU in Prague, TU in Liberec, IP of CAS in Prague, IIT of CAS in Brno and University of Florida in Gainesville.***

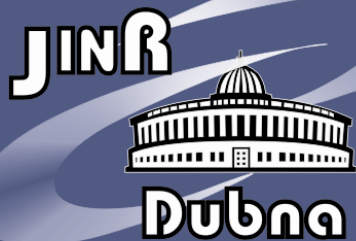
***This year it is devoted to the 90th anniversary of the birth of Yuriy Mikhailovich Kazarinov***

# Conference goals

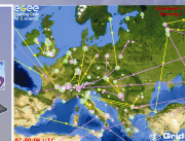
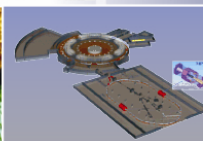
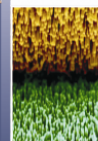
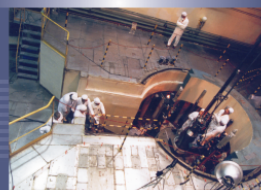
This series of conferences cover the symmetry & spin phenomena in particle and nuclear physics and astrophysics with the goals:

- ◆ to get the broadest possible view by inviting distinguished speakers
- ◆ to promote contacts among researchers with different physics background
- ◆ to review and discuss present status and perspectives of the research
- ◆ to help to form new collaborations
- ◆ to help young researchers and students to take active part in the international research programmes

**INTERNATIONAL INTERGOVERNMENTAL ORGANIZATION**



**JOINT INSTITUTE  
FOR NUCLEAR  
RESEARCH**



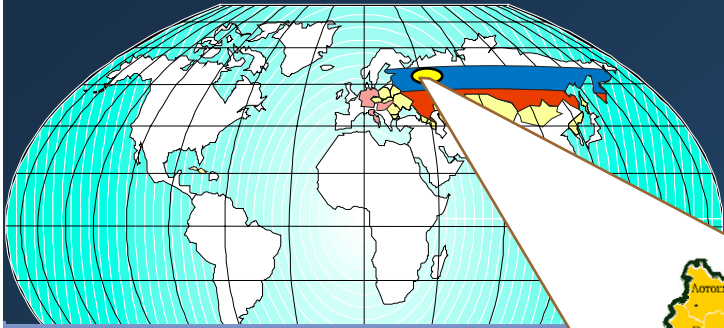
**The Science Policy  
of the Joint Institute for  
Nuclear Research**



**Aleksei Norairovich Sissakian (14.10.1944-1.5.2010)**



# Russia



## Moscow Region



## Dubna



## JINR

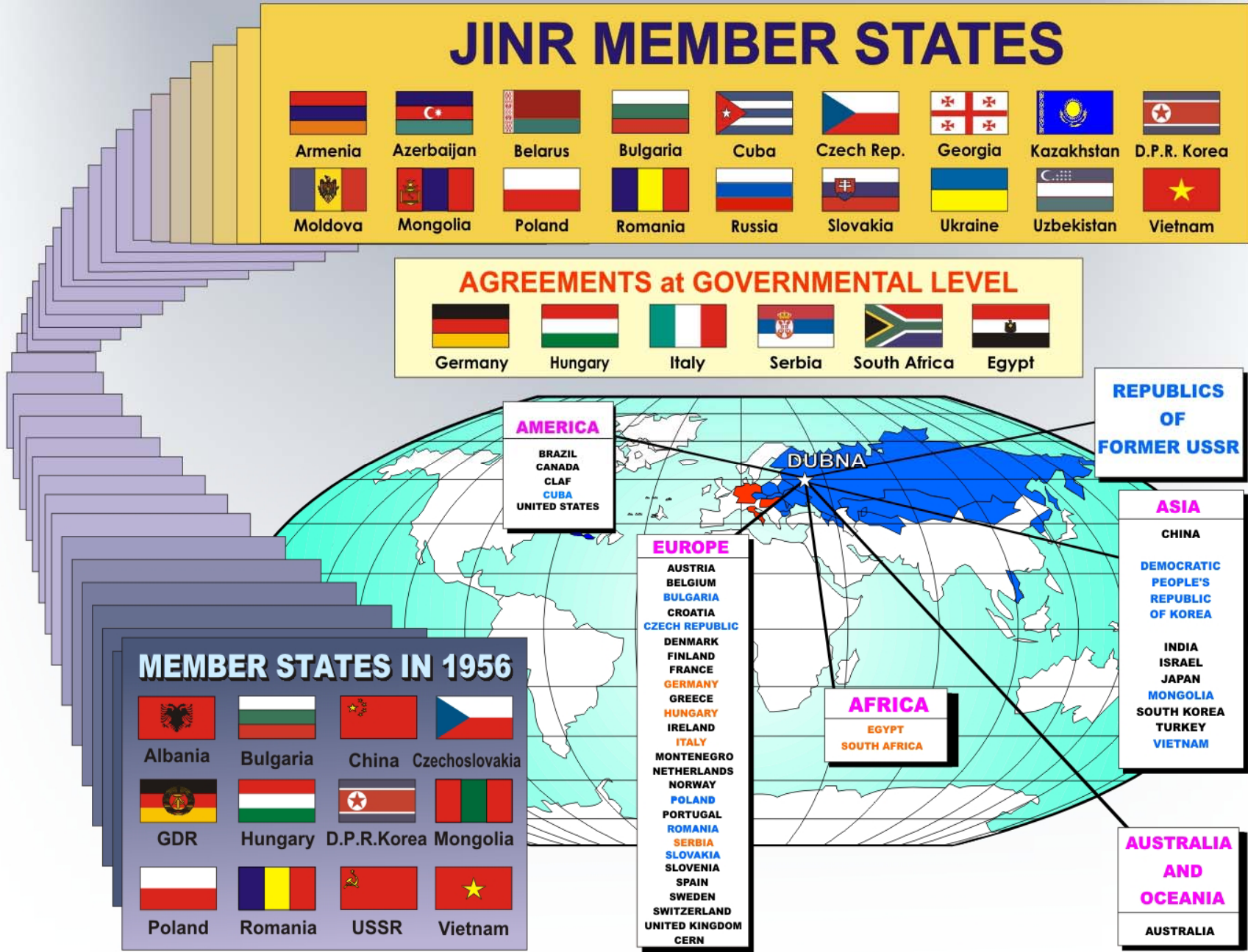




# JINR MEMBER STATES



## AGREEMENTS at GOVERNMENTAL LEVEL



### AMERICA

BRAZIL  
CANADA  
CLAF  
CUBA  
UNITED STATES

### REPUBLICS OF FORMER USSR

### ASIA

CHINA  
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

INDIA  
ISRAEL  
JAPAN  
MONGOLIA  
SOUTH KOREA  
TURKEY  
VIETNAM

### EUROPE

AUSTRIA  
BELGIUM  
BULGARIA  
CROATIA  
CZECH REPUBLIC  
DENMARK  
FINLAND  
FRANCE  
GERMANY  
GREECE  
HUNGARY  
IRELAND  
ITALY  
MONTENEGRO  
NETHERLANDS  
NORWAY  
POLAND  
PORTUGAL  
ROMANIA  
SERBIA  
SLOVAKIA  
SLOVENIA  
SPAIN  
SWEDEN  
SWITZERLAND  
UNITED KINGDOM  
CERN

### AFRICA

EGYPT  
SOUTH AFRICA

### AUSTRALIA AND OCEANIA

AUSTRALIA

## MEMBER STATES IN 1956



# Founders



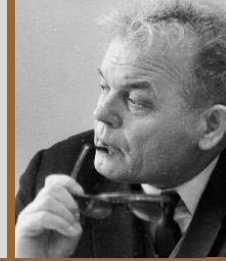
G.Flerov



V.Veksler



I.Frank



M.Meshcheryakov



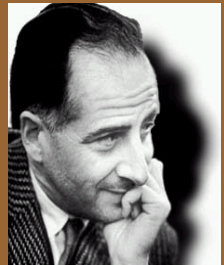
N.Bogoliubov,  
D.Blokhintsev



A.Baldin



V.Dzhelepov



B.Pontecorvo



H.Hulubei

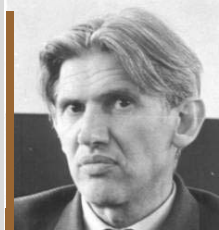


Wang Ganchang

L.Infeld



H.Niewodniczanski



L.Janossy



G.Najakov

# First Directorate



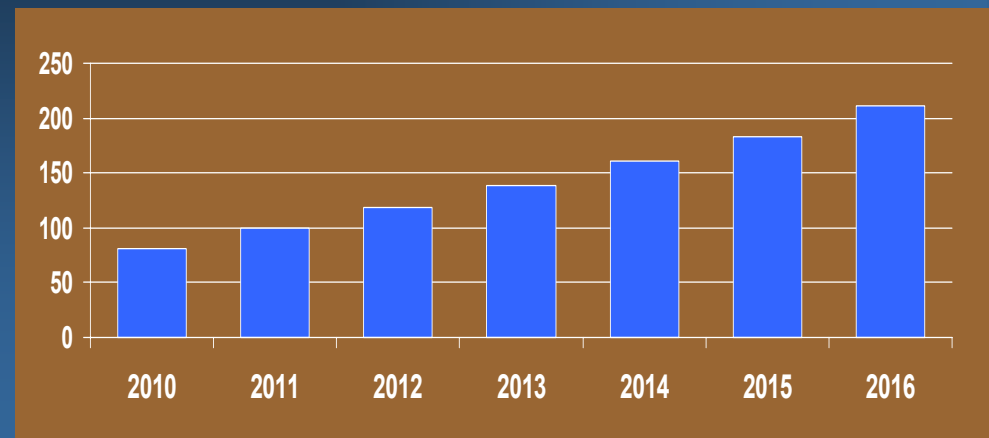
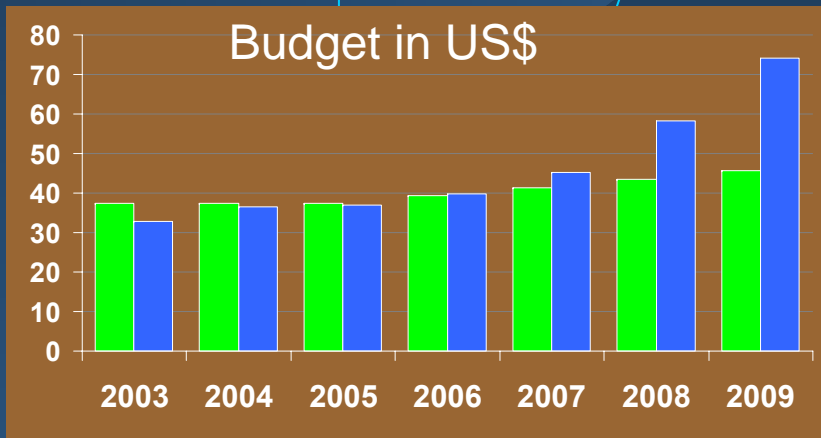
M.Danysz (Poland), D.I.Blokhintsev (USSR), V.Votruba (Czechoslovakia)



## *JINR in figures*

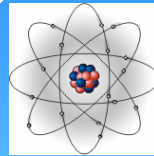
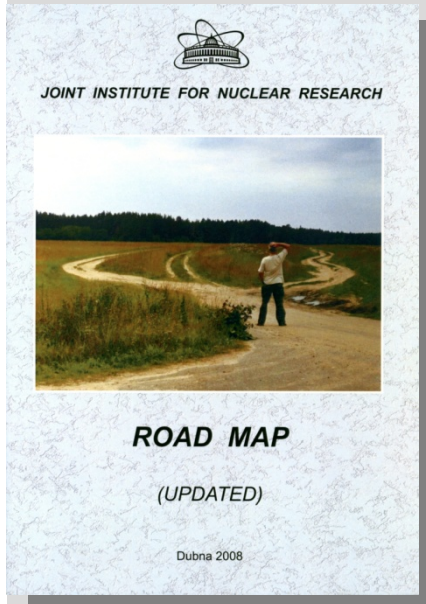
**JINR's staff members ~ 5500**  
**researchers ~ 1300**  
**including from the Member States ~ 500 (but**  
**Russia)**

**Doctors and PhD ~ 1000**



# JINR's Science Policy

- 7-Year Programme: '2003 – 2009'  
'2010 – 2016'
- Road Map (2006-2017)



**Fundamental  
Science**

**Innovation  
belt**

**Education  
programme**

**Special Economic Zone "Dubna"  
Public-Private-Partnership**

**UC, DIAS-TH  
International Univ. "Dubna"**

# JINR's ROAD MAP

## Basic Scientific Directions

- High Energy Physics
- Nuclear Physics
- Condensed Matter Physics

## Main Supporting Activities:

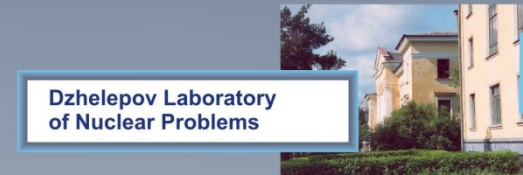
- Theory of PP, NP, CMP
- Networking and computing
- Physics instruments and methods
- Training of young staff



Bogoliubov Laboratory  
of Theoretical Physics



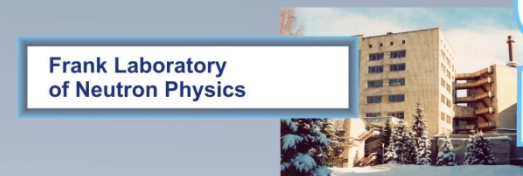
Veksler-Baldin Laboratory  
of High Energy Physics



Dzhelepov Laboratory  
of Nuclear Problems



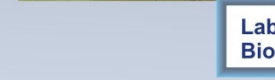
Flerov Laboratory  
of Nuclear Reactions



Frank Laboratory  
of Neutron Physics



Laboratory  
of Information Technologies



Laboratory of Radiation  
Biology

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# ***JINR's ROAD MAP***

**JINR's research niche offered  
by home facilities**



- **Heavy Ion Physics:**

**Heavy-ion Physics at high energies (up to 4.5 GeV/n), Nuclotron-M  
(in future NICA/MPD facility:  $\sqrt{s_{NN}} = (4 - 11)$  GeV,  $E_{lab.} \sim (8 - 60)$  GeV/n)**

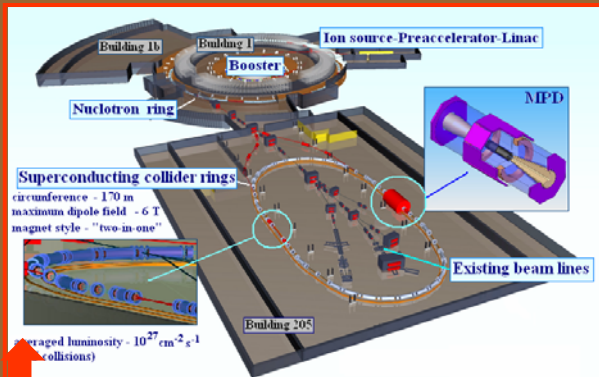


**Heavy-ion Physics at low and intermediate  
energies (5 – 100 MeV/n), U400MR, U400R, DRIBs**



**Condensed Matter Physics & radiobiology using  
nuclear physics methods (neutron sources: IBR-2M, IREN-I  
& accelerators)**

# Upgrade of JINR Basic Facilities

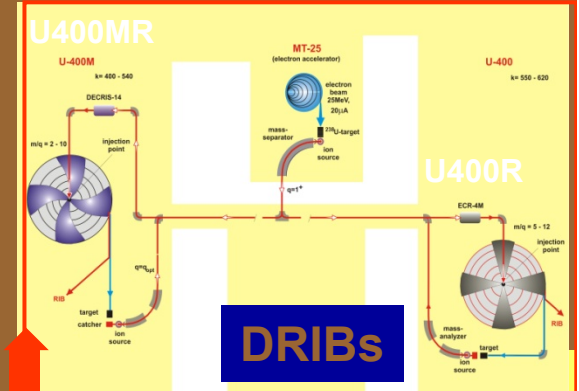


**Upgraded Nuclotron-M (2008 – 2010) + NICA (2013-2015)**

**Telecommunication channels:**  
 20 Gbps – 2009  
 40 Gbps – 2010  
 720 Gbps – 2016



**JINR networks:**  
 - GRID technology  
 - improvement of computer links with Member States (2010-2016)



**DRIBs II – (2009-2010)  
 DRIBs III – (2011-2015)**



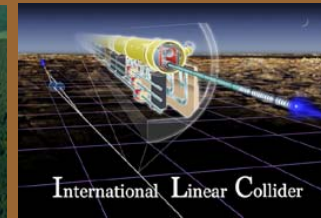
**Participating in LHC, RHIC, TEVATRON...  
 In future: FAIR, ILC ...**



**LHC-2009**



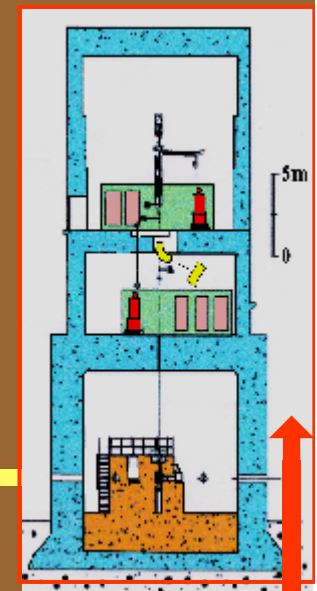
**FAIR-2016**



**ILC – after 2020 (?)**

**New reactor IBR-2M – 2010  
 Complex of modern neutron spectrometers (2011-2016)**

**IREN-I  
 2008**



*A vitally important task is attracting of young people from all the Member States to science*

## EDUCATIONAL PROGRAMME



## JINR UNIVERSITY CENTRE

More than 300 students and postgraduates from Member States are trained at the UC

Chairs:

MSU

MIPT

MEPI

MIREA

others

**JINR is a school of excellence for the Member States!**

“Dubna” International University



**DIAS - TH**

Dubna International Advanced School on Theoretical Physics

The UC offers graduate programmes in the fields of:

- ◆ Elementary Particle Physics
- ◆ Nuclear Physics
- ◆ Theoretical Physics
- ◆ Condensed Matter Physics
- ◆ Technical Physics
- ◆ Radiobiology



# Special Economic zone "DUBNA"

№ 1  
(135,71 ha)

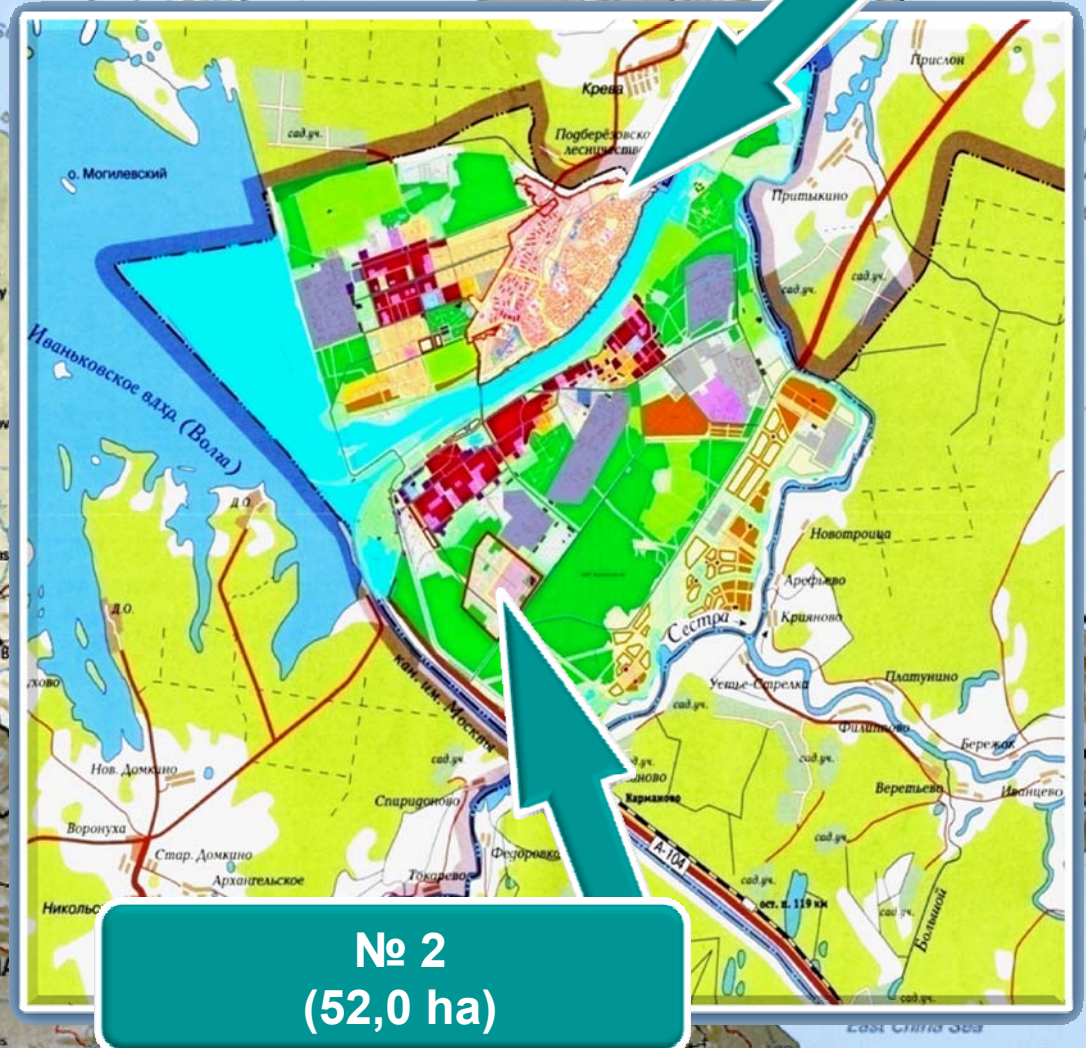
Saint Petersburg

Dubna

Zelenograd

Tomsk

№ 2  
(52,0 ha)





# **The Special Economic Zone in Dubna, Moscow region**

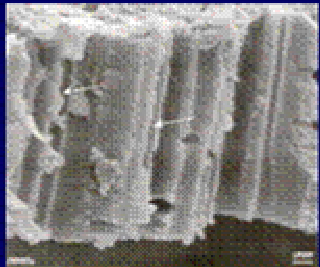
**> 60 residents, ~1/2 related to JINR**



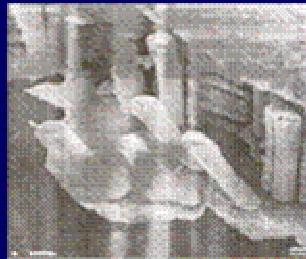
# SEZ main specialization

> 50 projects from JINR

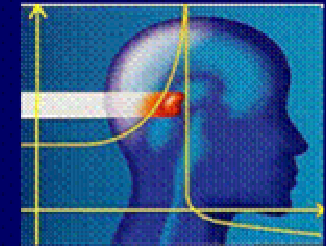
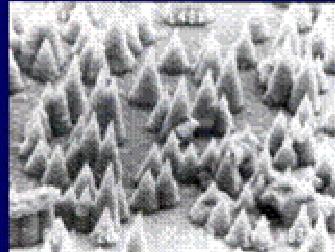
## Nanotechnologies



COPPER MICROTUBES

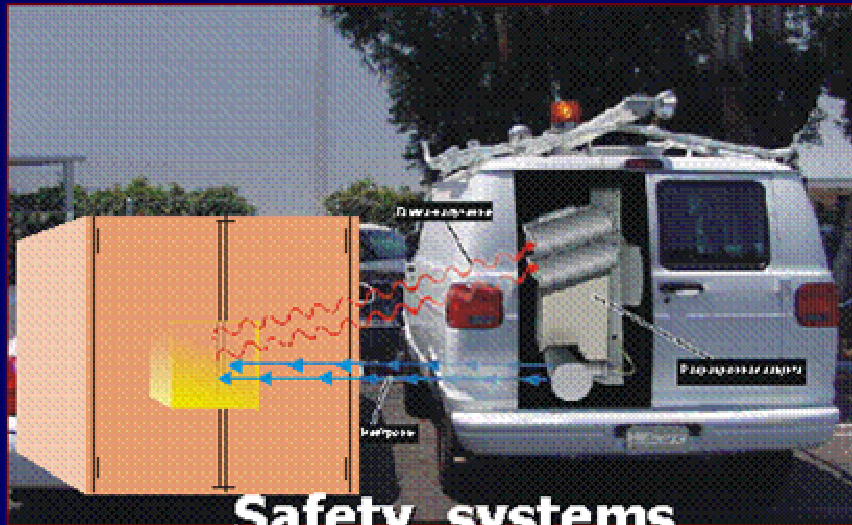


METALLIC NEEDLES



Hadron therapy

## Radiation medicine



Safety systems

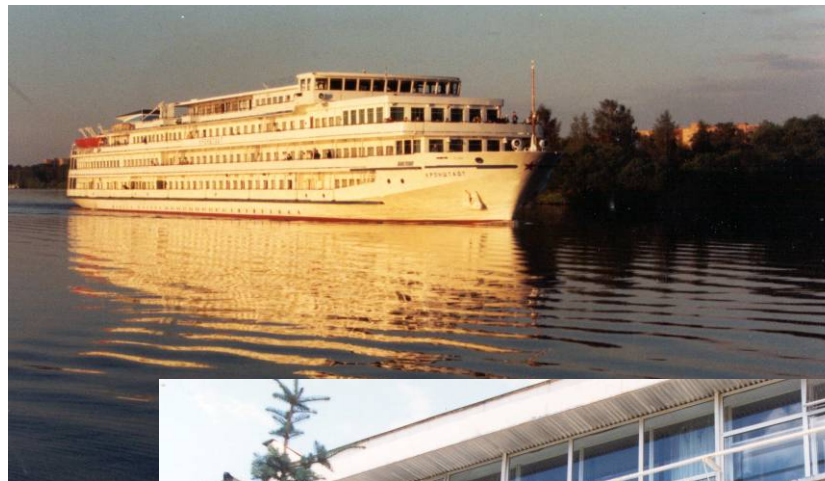
## IT and Telecommunication





# Welcome to JINR (Dubna)

ОИЯИ



More detailed information on JINR: [www.jinr.ru](http://www.jinr.ru)



**SYMMETRIES AND SPIN**  
**(SPIN-Praha-2010)**

**Prague, July 18 - July 24, 2010**



***Wishing you a productive  
work and a pleasant stay  
here in Prague***

***Thank you for the attention***

