

Round Table Italy-Russia at Dubna

Efforts in Fundamental Research
and
Perspectives for Applied S&T and Business Development

Report by Marco Boiti
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on
Scientific cooperation via joint Calls, competitive and open to
all Italian and Russian research Institutions

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Consortium E.I.N.S.T.E.IN. in Synthesis

Consortium E.I.N.S.T.E.IN. (European Institute for Nonlinear Studies via Transnationally Extended Interchanges) is a non profiting international interuniversity Consortium founded in 1991 by

- ▶ University of Salento, Lecce
- ▶ University of Rome “La Sapienza”
- ▶ Université des Sciences et Techniques II of Montpellier.

It is ruled by an Administrative Council, with representatives form the three Universities, and by a Scientific Committee, whose members, presently, are

- ▶ Prof. L. Martinez Alonso (Department of Theoretical Physics 2. Complutense University, Madrid)
- ▶ Prof. P. Sabatier (Laboratoire de Physique Théorique et Astroparticules, Université Montpellier II, Montpellier)
- ▶ Prof. A. Shabat (Landau Institute for Theoretical Physics, Moscow).

Main Aim and Facilities of Consortium

The main aim of this non-profitting Consortium is to develop the scientific international cooperation with special attention to the East-West cooperation.

In this context Einstein Consortium (as well as other science foundations all over the world) wants to play a special role, supporting individual projects collected by means of national calls, and, specifically, projects which could be the embryo of new scientific trends, ideas and methods.

Then, other scientific organizations could single out and support them in the future.

The Einstein Consortium is established in the scientific and technological area of the University of Salento and is located at the Physics Department. The Einstein Consortium can use facilities of the University of Salento to organize workshops and long term conferences for a large number of participants.

Main Past Activities

The Consortium coordinated in the period 1993-2002 various INTAS projects with the participation up to 7 teams from the East and 9 teams from the West.

The Consortium organized, starting from its foundation, almost every two years, international Workshops, in Gallipoli near Lecce, on Nonlinear Science, which became a relevant reference for the international community working in the field.

EINSTEIN Consortium and Russian Foundation for Basic Research

Taking into account the 30-year-old collaboration among Russian scientists and scientists from the University of Salento, as well as the international profile of the EINSTEIN Consortium and the great success of the previous INTAS projects, the RFBR has expressed interest in having the EINSTEIN Consortium as the national Italian counterpart for issuing joint calls for proposals in RFBR competence areas:

1. Mathematics, Mechanics and Informatics;
2. Physics and Astronomy;
3. Chemistry;
4. Biology and Medical Science;
5. Earth Sciences;
6. Humanities and Social Sciences;
7. Information Technology and Computer Systems;
8. Fundamentals of Engineering Sciences.

EINSTEIN Consortium & RFBR Agreement

RFBR stated many times that it is willing to invest large resources in the framework of Calls for proposals issued on a competitive basis, open to any research Institution in Italy, in the same way as Calls by the RFBR which are open to any research Institution within the Russian Federation.

It turned out that the EINSTEIN consortium was the only Italian Institution willing to make a move in this direction and in 2006 signed a “Memorandum of Understanding on Scientific Cooperation” with the Russian Foundation for Basic Research (RFBR), in order to promote and support scientific cooperation between highly qualified Russian and Italian scientists affiliated with Universities or research Institutes in the respective countries and engaged in any field of basic sciences.

Key Points of the Agreement

It is important to stress the following key points of the agreement:

- ▶ the flexibility of the signed framework agreement, which avoids clauses of rigid reciprocity and thus allows the two parts to better employ the specific human and material resources;
- ▶ the open and competitive nature of the joint calls, which guarantees the participation from both sides of the most qualified researchers in the specific area of the call, regardless of the Institution to which they belong, both in Italy and in the Russian Federation;
- ▶ the agreement enabled scientists to create teams on their own in order to unify effort in solution of essential scientific problems, developing the previously existing forms of the Italian-Russian collaboration;
- ▶ the decision of the Russian part of investing essential resources in scientific research and of using a large part of them for internationalization.

Promoted Joint Calls

In this framework Consortium and RFBR announced in 2006 a Call for joint grants for Italian and Russian scientists in the research area “The Theory of Nonlinear Integrable Systems”. As a result, 8 projects were funded for the biennium 2007-2008.

Successively, in 2008 a new Call entitled “The Theory of Nonlinear Integrable Systems and Applications” was announced and 42 projects involving Italian and Russian scientists, working in a large range of different scientific and technological areas from scientific Institutions all over Italy and Russia, were funded for the biennium 2009-2010.

Presently Running Call

Taking into account an extremely wide interest from both sides to this Call, it was decided to be not very rigid in filtering applications in accordance with the title of the Call.

This means that referees had freedom in considering more relevant the quality of the project with respect to its agreement with the title of the Call.

Joint projects submitted by Italian and Russian teams have been referred using the RFBR referee system, which is able to give an answer in one month.

In the following transparencies, for each approved project, the Institutions of the Russian and Italian team leaders are listed.

One has to take into account that members of both teams not necessarily are affiliated to the same Institution of the team leader.

Joint Projects on Mathematics, Mechanics and Informatics

- ▶ Institute of Applied Physics of RAS, **Nizhny Novgorod**
 - ▶ Dipartimento di Fisica, Università del Salento, **Lecce**
- ▶ Research Institute of Mathematics, State University of **Voronezh**
 - ▶ Dipartimento di Ingegneria dell'Informazione, Università di **Siena**
- ▶ Institute of Mathematical Physics, Physics Department of RAS, **Ufa**
 - ▶ Dipartimento di Ingegneria Elettronica, Università **Roma Tre**
- ▶ Institute of Thermophysics of RAS (Sib. div.), **Novosibirsk**
 - ▶ Institute of Photonics and Nanotechnology, CNR, **Trento**
- ▶ Steklov Mathematical Institute, **Moscow**
 - ▶ Dipartimento di Fisica, Università del Salento, **Lecce**
- ▶ Institute of Mechanics, **Moscow** State University
 - ▶ Istituto Nazionale di Geofisica e Vulcanologia, **Napoli**
- ▶ Institute of Mathematical Physics, Physics Department of RAS, **Ufa**
 - ▶ International School for Advanced Studies, **Trieste**

Joint Projects on Mathematics, Mechanics and Informatics

8.
 - ▶ Institute for Theoretical and Experimental Physics, **Moscow**
 - ▶ Department of Physics, Università **Roma** Tre
9.
 - ▶ Center for Continuous Mathematical Education, Independent University of **Moscow**
 - ▶ Università del Salento, Dipartimento di Matematica, **Lecce**
10.
 - ▶ Landau Institute for Theoretical Physics, **Chernogolovka**, Moscow
 - ▶ Department of Physics, Università **Roma** La Sapienza
11.
 - ▶ Institute of Theoretical and Experimental Physics, **Moscow**
 - ▶ International School for Advanced Studies, **Trieste**
12.
 - ▶ Institute of Continuum Media Mechanics of RAS, **Perm**
 - ▶ Department of Structural Engineering and Geotechnics, Politecnico di **Torino**
13.
 - ▶ Landau Institute for Theoretical Physics, **Chernogolovka**, Moscow
 - ▶ Dipartimento di Matematica e Applicazioni, Università di **Milano**

Joint Projects on Physics and Astronomy

- ▶ D.V. Skobeltsyn Institute of Nuclear Physics, Lomonosov **Moscow** State University
 - ▶ Department of Physics, Università di **Messina**
- ▶ Russian Academy Science, Faculty of Nonlinear Processes, RAS, State University of **Saratov**
 - ▶ CNR Istituto Nazionale di Ottica Applicata, **Firenze**
- ▶ Joint Institute for Nuclear Research, **Dubna**
 - ▶ INFN, **Milano** Bicocca
- ▶ Joint Institute for Nuclear Research, **Dubna**
 - ▶ Physics Department, Università della **Calabria**
- ▶ Institute for Nuclear Research, RAS, **Moscow**
 - ▶ INFN, **Gran Sasso** National Laboratory
- ▶ Physical Faculty, **St. Petersburg** State University
 - ▶ Dipartimento di Fisica Enrico Fermi, Università di **Pisa**
- ▶ Russian Research Center Kurchatov Institute, **Moscow**
 - ▶ INFN, **Gran Sasso** National Laboratory

Joint Projects on Physics and Astronomy

8.
 - ▶ Institute for High Energy Physics, **Protvino**
 - ▶ Dipartimento di Fisica e Matematica, Università dell'**Insubria**
9.
 - ▶ General Physics Institute, University of Chemical Technology of Russia, **Moscow**
 - ▶ NEST-CNR Physics Department, Università di **Pisa**
10.
 - ▶ Department of Physics, Lomonosov **Moscow** State University
 - ▶ IFAC-CNR Nello Carrara Institute of Applied Physics, **Firenze**

Joint Projects on Chemistry

1.
 - ▶ Institute of Chemistry, Kazan State University
 - ▶ Dipartimento di Scienze e Tecnologie Chimiche, Università di Roma Tor Vergata
2.
 - ▶ Faculty of Mechanics and Mathematics, Moscow State University
 - ▶ Department of Energy, Politecnico di Milano
3.
 - ▶ Chemistry Institute, Kazan State University
 - ▶ Department of Organic and Industrial Chemistry, Università di Parma
4.
 - ▶ Institute of Problems of Chemical Physics of RAS, Chernogolovka, Moscow
 - ▶ Aerospace Engineering Department, Politecnico di Milano
5.
 - ▶ Ioffe Physico-Technical Institute of RAS, St. Petersburg
 - ▶ Dipartimento di Fisica Nucleare e Teorica & INFN, Università di Pavia

Joint Projects on Biology and Medical Science

- ▶ Department of Cardiovascular Surgery, **Tomsk** Institute of Cardiology
 - ▶ CNR Istituto di Fisiologia Clinica, **Pisa**
- ▶ Lab. of Molecular Cytogenetics of Mammalian Development, Institute of Experimental Medicine of Russian Academy of Medical Sciences, **St. Petersburg**
 - ▶ Department of Biology, Università **Roma** Tre
- ▶ Laboratory of Experimental Ecology, Institute for Biology of Inland Waters of RAS, **Borok**
 - ▶ Department of General Psychology, Università di **Padova**
- ▶ National Research Center for Hematology, Russian Academy of Medical Sciences, **Moscow**
 - ▶ Department of Chemistry, Università di **Sassari**
- ▶ Eukaryote's Genetics Lab Division of Molecular and Radiation Biophysics, Petersburg Nuclear Physics Institute of RAS, **Gatchina**
 - ▶ Institute of Protein Biochemistry, CNR, **Napoli**

Joint Projects on Earth Sciences

1. ▶ Laboratory of Tectonophysics, Institute of the Earths Crust of Siberian Branch of RAS, **Irkutsk**
▶ Department of Earth Science, Università di **Ferrara**
2. ▶ Lab EM Data Interpretation Methodology, **Troitsk**
▶ Dipartimento di Geologia e Geofisica, Università di **Bari**
3. ▶ Faculty of Geography, **Moscow** State University
▶ Facoltà di Lettere e Filosofia, Università di **Roma** La Sapienza
4. ▶ Institute of Mining, Siberian Branch of RAS, **Novosibirsk**
▶ Department of Earth Sciences, Università di **Firenze**

Joint Projects on Information Technologies and Computer Systems

1.
 - ▶ Research Institute of Applied Mathematics and Mechanics, Bauman **Moscow** State Technical University
 - ▶ Department of Electronics and Telecommunications, Università di **Firenze**
2.
 - ▶ Processing Systems Institute of RAS, **Samara**
 - ▶ Department of Electronics, Faculty of Information Engineering, Politecnico di **Torino**

Joint Projects on Fundamentals of Engineering Sciences

1. ▶ Institute for Energy Problems of Chemical Physics of RAS, **Cernogolovka**, Moscow
▶ Institute on Membrane Technology of CNR, c/o Università della **Calabria**
2. ▶ Power Engineering Institute of **Moscow**
▶ Dipartimento di Energetica L. Poggi, Università di **Pisa**.
3. ▶ Institute for Problems in Mechanics of RAS, **Moscow**
▶ Dipartimento di Chimica, Università di **Bari**