

MEMORANDUM

Round Table Italy-Russia in Dubna «Efforts in Fundamental Research and Perspectives for Applied S&T and Business Development»

In the days 18th and 19th December 2009, gathered in Dubna about 50 participants including, in approximate equal proportion, well known and highly respected Italian and Russian Scientists as well as Scientists of the Joint Institute for Nuclear Research - International Intergovernmental Organization (JINR, Dubna), among which there were some official representatives of important institutions specifically, Academician Alexei Sissakian, Member of the Presidium of the Russian Academy of Sciences (RAS), Director of the Joint Institute for Nuclear Research, the Minister Counsellor Giovanni Iannuzzi and the Scientific Counsellor Pietro Fre' of the Italian Embassy in the Russian Federation, the Science Counsellor of the Delegation of the European Union to Russia, Richard Burger, Academician Victor Matveev, Member of the Presidium, Academician-Secretary of the Physical Sciences Division of RAS and Director of the Institute of Nuclear Research of RAS, Academician of RAS Vladimir Kadyshevsky, Scientific leader of JINR. The rest of the participants included very much distinguished scientists from major Scientific Centers of both countries and various Directors of Institutes and Laboratories: in particular Prof. Mario Calvetti, Director of Frascati National Laboratories, Prof. Guido Martinelli, President of the IV Commission (Theoretical) of the Italian National Institute of Nuclear Physics (INFN), Prof. Antonio Masiero, President of the Padova INFN Section, Prof. Mirco Mazzucato, Director of INFN CNAF of the Italian grid infrastructure, and Prof. Marco Boiti, President of the EINSTEIN CONSORTIUM. Among the distinguished physicists and mathematicians who took part in the event there were almost all the Russians who presently occupy permanent positions as full professors or research directors in Italy, namely Prof. Boris Dubrovin from SISSA, Prof. Boris Konopelchenko from Lecce University and Prof. Dmitri Sorokin from INFN Padova Section. The complete list of the other authoritative participants is attached at the end of this Memorandum.

In the two day work of the Round Table, the current status of the Italian-Russian collaborations was reviewed from many different perspectives and found to be very much extended, ramified and proficient. The close scientific ties between the INFN, Academia dei Lincei in Italy and Russian Academy of Sciences, ROSATOM, ROSCOSMOS and Joint Institute of Nuclear Research bring considerable contribution into this collaboration for the mutual benefit. Yet, there was general consensus that it can be further improved and amplified. This should occur both by strengthening the financial and logistical support of existing joint ventures and by starting new ones in new research fields besides those that have been so far the traditional focus of the common work between the two countries.

With a special pleasure from both sides, the participants of the Round Table noted that the collaboration between INFN and JINR was born thanks to the close friendship between the Italian Academician Gleb Vasilievich Wataghin, director of the Physical Institute of Torino University, and the Russian Academician Nikolay Nikolaevich Bogoliubov, former director of JINR of Dubna, the true fathers and pioneers of the Italian-Dubna cooperation. The collaboration between Prof. Guido Piragino and Prof. Yury

Scherbakov was established in 1968 on the basis of many common scientific and technological interests.

Concerning the joint activities in Space Exploration it has been mentioned, in the reports dedicated to bilateral collaboration in space activities, the future Italian-Russian mission named in honour of Roberto Oros di Bartini, the Italian engineer – one of the ‘fathers’ of the Soviet aviation. The Bartini mission was considered in the ASI-Roscosmos meeting in Rome last June. The figure and work of Bartini had always a high consideration in Russia, to whom several books and media issues were dedicated. In occasion of last visit to Moscow in November of Ing. Saggese, president of Italian Space Agency (ASI), general director of Russian Space Agency (Roscosmos) Gen. Perminov made him a present of the last book published in Russia dedicated to Bartini ‘The Bartini’s airplanes’. Furthermore the name of Bartini appeared last year, between Cavalieri and Mastroianni, in the diary of the Italian Embassy in Moscow among the great Italians that contributed to the development of culture in Russia. To Roberto Oros di Bartini, as well to other great Italians that contributed to Russia culture and history, it should be dedicated in future a special event for maintaining alive their work and their memory.

Taking into account all the talks and the information on planned JINR (International Intergovernmental Organization located in the Russian Federation) projects, the Round Table supported the scientific policy of the Joint Institute and came to the conclusion that the Italian contribution to their realization might be very positive and beneficial for both sides.

Moreover the Round Table came up with a specific list of strong suggestions to all the Institutions, Governmental (including Diplomatic), Scientific, that might be responsible for their implementation.

1. Much closer relations between the Particle, Nuclear and Astrophysical Institutions of both countries, like JINR, INR RAS, FIAN, INFN, INAF, Centro Fermi and the Cosmic Agencies of the same two countries like ASI and ROSCOSMOS should be planned, in order to better organize efforts in fundamental AstroParticle and Cosmological Research. Furthermore more extensive Italian-Russian collaborations should be promoted with the Centro di Ricerche Aereo Spaziali of the University of Roma la Sapienza.
2. Urgent renovation of the Governmental Agreement between JINR (Dubna) and Italy as an Associated Member State, that existed in the past but expired quite recently.
3. The basic facilities of Dubna should be integrated into the framework of the European Scientific Infrastructures. This can drastically improve the conditions of cooperation.
4. The NICA/MPD project is impressive and provides a probably unique chance of observing new states of super-dense matter, whose revelation might not be accessible or accessible with more difficulties to competitor machines like FAIR at GSI, RHIC at BNL and SPS at CERN. Italian participation in the construction of NICA/MPD is mostly welcome by the Russian side and might turn quite beneficial for both scientific communities. It should be properly discussed at the Governmental level and become an international treaty similar to that recently signed in the Italian-Russian summit of December 3rd 2009 in Rome, in connection with the Millimetron

Experiment.

5. The extensive collaboration between Italian and Russian Scientists in the field of relativistic nuclear collisions from both the theoretical and the experimental points of view has been very fruitful in the past and promises to further expand in the future. Its further development would help maintaining and boosting the scientific environment necessary for the optimal exploitation of current and future experiments in the field, in particular MPD/NICA. Funding for exchange of scientists should be strengthened at the ministerial level.
6. There is a strong suggestion to the Directorates of INFN and JINR, to the Physical Sciences Division of RAS to prepare a partnership program which should emphasize the main projects of mutual interest.
7. There should be a much more extended financial involvement of Italy, in particular through INFN, in the organization and promotion of the Specialized School Programs run by JINR, named DIAS-TH. Specifically, more Italian speakers should contribute lectures and the promotion of such schools among Italian Ph.D. students and postdoc should be much more effective. INFN and Italian Universities should support student and postdoc participation to the DIAS-TH Schools by including them in their standard advanced educational programs. Actually it was proposed that one of the DIAS-TH Schools, devoted to astroparticle physics and cosmology, could be jointly organized alternatively one year in Dubna and one year in the Galileo Galilei Institute in Florence.
8. With great pleasure the Round Table participants have noted the successful practice of the International Pontecorvo Schools on Neutrino Physics and strongly suggest supporting the continuation of such schools with a bi-national system of financing.
9. The existing program of visiting professor exchanges between INFN and BLTP-JINR (Bogoliubov Laboratory of Theoretical Physics) should undergo a drastic enlargement of resources. From the present level of financing, which just allows for a few person-months (4-6), we should make a drastic jump to a level of resources capable of supporting several tens of person-month financing.
10. A more systematic organization of Calls for the presentation of Joint Project Grants open to all Italian and Russian research institutes, run by the Russian Foundation for Basic Research, in collaboration with Italian Scientific Institutions like CNR, INFN, EINSTEIN CONSORTIUM or ASP (Association for the Development of Piemonte) should be formalized at the Ministerial level and properly financed on both sides.
11. More close contacts between Italian Universities, Laboratories and Industries working in the field of Nanotechnologies with their Russian Counterparts, in particular with the International Centre for Nanotechnologies of Commonwealth of Independent States (Dubna) should be established, specifically deeper interactions between University of Rome La Sapienza and the JINR Laboratory of Neutron Physics, which runs the IBR-2M reactor is advisable. Moreover adequate spreading of information about the Russian State Corporation ROSNANO among the principal Italian actors of the nanotech field should be built.
12. It was singled out a specific interest in creating Italian-Russian collaborations in the field of radiation and RNA Biology. The JINR accelerators are the power tool for modeling biological effects of space radiations. It is more important for study of action accelerated heavy ions on the retina and nervous cells. The specific topics that were found most promising are the following ones. On one hand the study of abiotic generation and evolution of RNA sequences, potentially leading to understanding of

the origin of genetic information and nanotechnological applications. On the other hand the use of RNA as a potential therapeutic molecule for the treatment of inherited and acquired genetic disorders.

13. Italy should take an active role and prepare all the necessary political and diplomatic steps to facilitate and accelerate the ongoing process devoted to integrate the Russian Federation inside the FP7 programs of the European Union.
14. Both Italy and Russia are deeply involved in WLCG and the new European Grid Initiative. During the discussions occurred in the Round Table several topics for a specific scientific and technical program of collaboration in the domain of GRID and cloud services operation, development and testing between JINR and INFN, representing the Italian GRID Infrastructure (IGI), have been identified. A common willingness to arrive to a Memorandum of Understanding specifying objectives and financial framework for such collaboration has been established.
15. There is a recommendation to the Directorates of INFN and JINR, to the Presidium of RAS, to the Italian and Russian Ministries of Education and Science, to the Italian and Russian Ministries of Foreign Affairs, to ROSCOSMOS, ROSNANO, ROSATOM and RFBR to submit the Round Table Memorandum.
16. Within this general framework direct inter-institute agreements of both countries are encouraged.

The Appointed Editing Board of the Round -Table Memorandum.

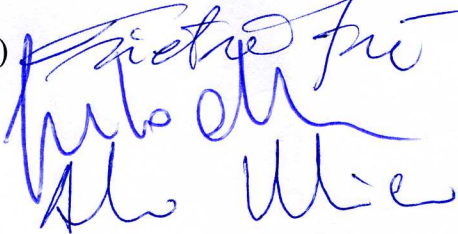
Prof. Pietro Fre' (Chairman)

Prof. Guido Martinelli

Prof. Antonio Masiero

Academician RAS, Prof. Victor Matveev

Corresponding Member of NASU, Prof. Vitaly Shelest



Dubna, December 19, 2009