

ICRANet Scientific Committee  
Seventh Meeting  
December 10<sup>th</sup> - 11<sup>th</sup>, 2012

The meeting starts at 9:15 am of the 10<sup>th</sup> of December 2012 in the AUI Headquarter in Washington, DC (USA). The following members are present:

David Arnett (Representative of Arizona University)  
Carlo Luciano Bianco (Representative of ICRA)  
João Braga (Representative of Brazil)  
Riccardo Giacconi (Representative of Italy, Chairman)  
Robert Jantzen with proxy by Gabriele Gionti (Representative of the Vatican State)  
John Mester (Representative of Stanford University, Co-Chairman)  
Jorge Rueda with proxy by Felix Aharonian (Representative of Armenia)  
Remo Ruffini (Director of ICRANet)

Also in attendance:

Federica Di Berardino (Head of ICRANet Secretariat)

The meeting is chaired by Prof. Riccardo Giacconi and the minutes are taken by the Director.

The Director presents the three volumes of his report to the Committee.

The presentation of the report by the Director starts at 9:15am. The Director specifically illustrates:

- the status of the Staff, visiting scientists and graduate students at the Pescara Center;
- the Major role that Brazil is acquiring in the ICRANet activities; as examples, he illustrates three major points: a) the Memorandum of Understanding signed with CAPES (Brazilian Federal Agency for Support and Evaluation of Graduate Education), and the preparation of a similar document with FAPERJ (Research Funding Agency for the State of Rio de Janeiro), b) the further development of the Brazilian Science Data Center (BSDC), and c) the Cesare Lattes program for exchange of Scientists;
- the completion of restructuring of the ICRANet seat in Nice: Villa Ratti;
- the teaching activities held in September in Nice, as well as the XIII Marcel Grossmann Meeting held in Stockholm (Sweden) in July, the XXXI ESOP-Clavius fourth centennial meeting held in Pescara (Italy) in August, and the meeting on Current Issues on Relativistic Astrophysics held in Seoul (South Korea) in November;
- the new and pre-existent Agreements with the BSU (Belarusian State University, Belarus), CAPES (Brazilian Federal Agency for Support and Evaluation of Graduate Education), CBPF (Brazil), Ceará State (Brazil), ENEA (National Agency for new technologies, energy and the economic sustainable development, Italy), ICTP (The Abdus Salam International Center for Theoretical Physics, Italy), IHEP (Institute of High Energy Physics, Chinese Academy of Sciences, China), INFN (National Institute for Nuclear Physics, Italy), ITA (Instituto Tecnológico de Aeronáutica, Brazil), GARR (Italy), LeCosPa (Leung Center for Cosmology and Particle Astrophysics, Taiwan), NAS (National Academy of Science, Armenia), Nice University Sophia Antipolis (France), Pescara University “D’Annunzio” (Italy), Physics Department of University of Rome “Sapienza” (Italy), UERJ (Rio de Janeiro State University, Brazil), UFPB (Universidade Federal da Paraíba, Brazil) University of Rome “Sapienza” (Italy), UNS (Universidad Nacional del Sur, Argentina);

- the large number of Students and the growth of the International Relativistic Astrophysics PhD Program (IRAP PhD), promoted by ICRANet with the academic support of the University of Rome “Sapienza”, the University of Ferrara, the University of Nice Sophia-Antipolis, the Freie Universitaet of Berlin, the University of Savoy, the Institut des Hautes Etudes Scientifiques, the Observatoire de la Côte d’Azur and the recently three adjoint Institutes: the Tartu Observatory, the Albert Einstein Institute in Potsdam and the University of Stockholm; the acceptance in the IRAP-PhD of the University Campus Biomedico, of the University of Insubria and of the University of Udine;
- that the IRAP PhD has grown and obtained the official recognition of the Erasmus Mundus program of the European Commission and has seen the registration of 28 additional students within this new framework. In this new extended activity it has been involved also with the Indian Center for Space Physics (India) and the Shanghai Astronomical Observatory (China);
- the project for the ICRANet Center at the Casino de Urca in Rio de Janeiro (Brazil) further developed.

The scientific activities of ICRANet have been presented on selected topics. Either in person:

J.A. Rueda *From Nuclei to Compact Stars via Magnetars, SGRs and AXPs*

C.L. Bianco *New outcomes of GRB observations*

V. Belinski *Exact Solutions of Einstein and Einstein-Maxwell equations*

S.-S. Xue *Electron-positron pairs production and evolution in gravitational collapses*

or by remote Skype connection:

L. Izzo *The case of GRB 090618*

A. Penacchioni *The case of GRBs 101023*

M. Muccino *Genuine short GRBs: GRB 090227B*

G.B. Pisani *A new distance indicator for GRBs associated with SNe*

D. Bini *Symmetries in General Relativity*

S. Filippi-C. Cherubini *Interdisciplinary theoretical physics*

G. Vereshchagin *Annual report from the Theoretical Astroparticle Physics group*

H. Kleinert *Tsallis statistics and large scale structure of the universe*

The Committee:

- thanks the Director for his presentation and congratulates him for the clear scientific success and achievements of ICRANet accomplished under his leadership;
- recognizes the ample expansion of topics of Scientific Research at the highest international levels and the many results obtained; particularly important are the developments in the traditional fields of research, such as the Physics and Astrophysics of Neutron Stars, White Dwarfs and Black Holes.
- notices as well a promising opening of scientific interests in the field of high redshift cosmology and the large scale structure of the Universe; equally important is the progress toward field theories in extreme relativistic conditions made possible by the confrontation with data from X and Gamma ray satellites and Earth-based observatories in all wavelengths from the optical to the UHE gamma rays;
- recognizes the contributions of the Governments of Armenia, Brazil, Italy and Vatican State, as well as from Stanford University, the University of Arizona at Tucson, and ICRA for the creation of ICRANet as an international organization, operating in one

of the most advanced fields of research, and is also grateful to the Italian government for granting the extraterritorial Status to the Seat in Pescara;

- witnesses the widening of scientific interest made possible by the geographical expansion of the ICRANet activities in Armenia, Brazil, China, France; it welcomes the action by the Director to obtain funding, local premises and support of the local Authorities, which adds a substantial increase to the assets of ICRANet;
- recognizes the strategic value of the activities in Brazil with the development in the ICRANet Center in Rio of the BSDC (Brazilian Science Data Center), specially devoted to the acquisition, storage, classification and analysis of astrophysical data;
- welcomes as well the signature of the agreement with University of Joao Pessoa and encourages the signature of an agreement with INPE (Instituto Nacional de Pesquisas Espaciais), especially in view of the possible Italian collaborations with Brazil for the future development of astrophysical satellites;
- expresses gratitude for the project of installing the Brazilian ICRANet Center at the Casino de Urca and expresses the support to the Ministry of Science in Brazil to realize such a project in the near future;
- is pleased about the full enforcement of the Seat agreement for the Pescara Center unanimously approved by the Italian Parliament, and recommends that similar actions will be made in order to obtain the same status in the territories hosting the other Seats of ICRANet, especially the ones in Rio de Janeiro and in Yerevan;
- asks the Director to address the attention of the Foreign Ministers of the ICRANet Members States on obtaining the Seat agreement for the Center in Villa Ratti in Nice; the entrance of France in ICRANet should be also considered with priority in view of the many common scientific interests with ICRANet;
- underlines the activities in the organization of international meetings: especially remarkable has been the XIII Marcel Grossmann Meeting in Stockholm (Sweden) and the program of biannual meetings between Italy and Korea sponsored by the Italian Foreign Ministry, as well as all the many PhD schools organized in Italy and in France;
- recognizes the strong commitment of teaching at graduate-student level, promoted by ICRANet in establishing the IRAP PhD in connection with some of the leading Astrophysical and Physical research Institutions of Europe, directly related to the activities encouraged by ICRANet in Brazil, China and India;
- recognizes that, in order to keep pace with these scientific developments and with its scientific goals, as well as with the teaching to a vast number of IRAP PhD students all over the world, an expansion of the Faculty, visitors and research Members, both in Europe and in Brazil, is necessary and recommends the Director to open new appointments;

The Director notes:

- the contributions obtained in kind for the ICRANet Centers by the Municipalities of Pescara and Nice, by the CBPF in Rio de Janeiro, and by the Academy of Science of Armenia in Yerevan;
- the support given by the Erasmus Mundus program of the European Commission to the IRAP PhD program;
- the increase of international activities in Brazil, China, France;
- the contribution given by the Brazilian Government expected in 2013.

He further notes:

- that the contribution of the Italian Government has been kept constant since the beginning of the ICRANet activities started in 2005, not taking into account any effect of inflation;
- that the Board of ICRANet has unanimously reiterated a request for the increase of funding for the Italian contributions;
- that the request by the Italian Foreign Minister to the Italian Government of an increase of 700,000.00 Euros for the years 2011 and following has not been granted in view of the current economical difficulties; it is stressed, however, that, without such an increase, new Faculty Members cannot be appointed and all the IRAP-PhD program financed from the European Community, will no longer be able to be supported scientifically and the overall scientific activity of the Center will be decreased, endangering the major research mission of ICRANet.

In view of all the above very significant developments and commitments toward international partners in teaching and research, he will:

- have, with the representatives of Brazil in the ICRANet Board (Prof. Mario Novello) and in the Scientific Committee (Prof. João Braga), meetings in Brazil with the Ministries of Science and Technology, of Foreign Affairs, and of Planning, as well as with representatives of the scientific and technological community, in order to formulate the ICRANet program for Brazil, following the presentation in the current report, based on a contribution by Brazil for 1,932,000.00 Euros;
- have meetings with the representatives of the Italian Ministries of Foreign Affairs, of Treasury, and of University and Research in order to convey the unanimous and urgent request by all Members to guarantee the continuation of the current scientific activities, in view of the fact that no residual funds are any longer available in ICRANet; this common action of all Members should lead to a request to be discussed in the next Board meeting in February 2013 for an increase of the Italian annual contribution of 1,000,000.00 Euros for the years 2013 and following; all this also in view of the above mentioned yearly financial contribution of the European Community for the Erasmus Mundus program and the many contributions in kind and in funds offered by all Members.

In conclusion given the strength of the Organization, the Committee is pleased to comment on their results with the intent of driving for excellence:

- ⤴ takes note of the clear success of the ICRA/ICRANet group, led by its Director, in advancing in all the planned research topics and in accomplishing their goals,
- ⤴ acknowledges the contributions by the Minister of Research of Italy for the continuous support of ICRA and the Italian government for the law establishing ICRANet and recognizes the great significance of the actions and financial support of the Italian Foreign Minister.
- ⤴ recognizes the great significance of the actions of the Minister of Foreign Affairs for drafting the Seat Agreement, the Minister of Science, the Minister of Planning of Brazil for their contributions, and looks forward to the reaching of full operation of the ICRANet Center in Rio de Janeiro;
- ⤴ supports the Director on the establishment of a stronger and wider link with Brazil with specific plans for expansion of the facilities as well as of the Faculty, the

Scientists and the Administrative Staff; all the positions will be open to international participants;

- ⤴ supports the development of the BSDC, which may become a corner stone for the activities of ICRANet in Brazil possibly to be extended to South and Latin America;
- ⤴ supports further contacts with South Korea and fostering of the collaborations with Singapore and India;
- ⤴ is particularly pleased by the ICRANet activities within the IRAP-PhD and the Erasmus Mundus Program, jointly with the Universities in the European Union and Brazil, Armenia, China and India; the presence of 44 young students (1 from Albania, 2 from Argentina, 2 from Armenia, 1 from Austria, 1 from Belarus, 5 from Brazil, 3 from China, 1 from Colombia, 2 from France, 4 from Germany, 1 from Kazakhstan, 6 from India, 1 from Iran, 11 from Italy, 2 from Russia, 1 from Turkey) has given new vitality to the scientific atmosphere in the Pescara Center and their participation in many of the scientific reports has been extremely encouraging;
- ⤴ notes with great satisfaction, in this difficult period for the development of research in science, the progress and consolidation of ICRANet scientific activities, successfully overcoming the current difficulties in funding;
- ⤴ unanimously endorses the above mentioned request by the Director, on behalf of all Members, for the increase of the Italian annual contribution due to the current needs of research and teaching activities;
- ⤴ finally recognizes the continuously improving tone and content of the scientific discussions and it must credit the Director, Prof. Remo Ruffini, and his staff with the creative follow up to its recommendations of last year.

The meeting ends at 12:00 pm on the December 11<sup>th</sup> 2012 after the reading and unanimous approval of this report.



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Prof. Riccardo Giacconi  
Chairman of the ICRANet Scientific Committee