

ICRANet Scientific Committee  
Fifth Meeting  
December 14<sup>th</sup> -15<sup>th</sup>, 2010

The meeting starts at 9:00 am of the 14<sup>th</sup> of December 2010 in the ICRANet Center in Pescara. The following people are present:

Carlo Luciano Bianco (Representative of ICRA)  
João Braga (Representative of Brazil)  
Riccardo Giacconi (Representative of Italy, Chairman)  
Gabriele Gionti (Representative of the Vatican State)  
John Mester (Representative of Stanford University, Co-Chairman)  
Remo Ruffini (Director of ICRANet)

Also in attendance:

Federica Di Bernardino (Head of ICRANet Secretariat)  
Aniello Francesco Izzo (Expert of ICRANet)

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.

At 10:00 am a press conference is made in the ground floor of the ICRANet building. The public presentation of the report of the Director starts at 11 am. The Director specifically illustrates:

- the status of the Staff, visiting scientists and graduate students at the Pescara Center;
- the ratification by the Italian Parliament of the Seat Agreement (legge 13 maggio 2010, n. 83) and its entering into force in view of the exchange of notes between the Segretario di Legazione Marco Cerbo and the ICRANet Director Remo Ruffini on August 17<sup>th</sup>, 2010;
- the status of the works in Villa Ratti;
- the teaching activities held in February in Nice, in March in Ferrara and in September in Nice, as well as the 2<sup>nd</sup> Galileo Xu-GuangQi meeting held in Nice and Ventimiglia in July and the special session at the annual meeting of the Korean Physical Society held in Korea in October;
- the new and pre-existent Agreements with the BSU (Belarusian State University) in Minsk, the CBPF in Brazil, the Ceará State in Brazil, the ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development), the GARR in Italy, the ICTP (Abdus Salam International Center for Theoretical Physics), the INFN (National Institute of Nuclear Physics), the LeCosPa in Taiwan, the NAS RA (National Academy of Science of the Republic of Armenia), the University of Nice-Sophia Antipolis, the Pescara University “D’Annunzio” in Italy, the University of Rome “Sapienza”, the State University of Rio de Janeiro (Universidade do Estado do Rio de Janeiro, UERJ);
- 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;

- that the IRAP PhD has grown and obtained the official recognition of the Erasmus Mundus program of the European Commission and has seen the additional registration of the first ten students within this new framework. In this new extended activity it has been involved also the Indian Center for Space Physics (India) and the Shanghai Astronomical Observatory (China);
- that the Brazilian Government has granted to the Brazilian activities of ICRANet 280,000 Euros for the year 2009 and 280,000 for 2010;

The scientific activities of ICRANet have been presented on selected topics

V. Belinski *New books and progress on BKL theory and Einstein-Maxwell solitons*

D. Bini *Physical Solutions for Rotating Systems*

G. Vereshchagin – A. Aksenov  *$e^+e^-$  Pair Plasma and GRBs*

J. Rueda *White Dwarf and Neutron Stars Critical Fields*

N. Sahakyan *Ultra High Energy Emission from Supernovae, Galaxies and Centaurus A*

C.L. Bianco – L. Caito *The canonical GRB scenario: genuine and disguised short GRBs*

S. Chakrabarti – L. Izzo *GRB090618 and others as examples of multiple GRB*

G. Vereshchagin – G. De Barros *Structure and duration of P-GRB: the connection to the source*

M. Della Valle *Supernovae and GRBs*

C. Cherubini *Interdisciplinary Theoretical Physics from Galaxies to Biological System*

The Director proposes to the Scientific Committee the “Cesare Lattes Program” to be financed by the Brazilian contribution. In addition to organize seminars and workshops, ICRANet will open four post-doctoral positions, three assistant professor positions, three senior visiting scientist positions (each one for a two months period), and one full professor position. All these positions will see a participation for 75% of the time in Brazil and for 25% of the time in other seats of the ICRANet network. In addition, a limited amount of the Brazilian contribution will be used for secretarial help and administrative work. The Committee unanimously approves.

The Director recalls:

- that the contribution of the Italian Government has been kept constant since the beginning of the ICRANet activities started in 2005;
- that the Scientific Committee, following the Art.6 and Art.13 (item v) of the Statute, has reiterated in the Meetings on November 27<sup>th</sup>-28<sup>th</sup> 2007, November 19<sup>th</sup>-20<sup>th</sup> 2008 and December 14<sup>th</sup>-15<sup>th</sup> 2009 a request for the increase of funding for the Italian contributions;

- the many contributions obtained in kind by the Municipalities of Pescara and Nice and by CBPF in Rio de Janeiro;
- the support given by the Erasmus Mundus program of the European Commission to the IRAP PhD program;
- the contribution given by the Brazilian Government for 2009 and 2010;
- the request by the Italian Foreign Minister to the Italian Government of an increase of 700,000 Euros for the years 2011 and following, which is currently under examination by the Government;
- the increase of international activities.

The Committee:

- asks the Director to express its profound gratitude to the Governments of Armenia, Brazil, Italy and Vatican State for the creation as an international organization of ICRANet, operating in one of the most advanced field of research, and also its gratitude to the Italian government for granting the extraterritorial Status to the Seat in Pescara;
- witnesses the widening of scientific interest provided by the geographical expansion of the ICRANet activities in Nice and in Rio; it welcomes the action by the Director to obtain funding and local premises for the seats by direct support of the local Authorities, which adds a substantial increase to the assets of ICRANet;
- recognizes the strategic value of the opening of the activities in Brazil and welcomes the possibility of signing an agreement with INPE and with ITA, especially in view of the MIRAX mission;
- is pleased by the actions of the Director to get the extraterritorial status in the Pescara Center and recommends that similar actions will be made in order to obtain the same status in the territories hosting the other seats of ICRANet;
- recognizes the ample expansion of topics of Scientific Research at the highest international levels; particularly important are the developments in the traditional field of research, such as the Physics and Astrophysics of Neutron Stars and Black Holes, as well as the mathematical foundations of the Solutions of Einstein-Maxwell Equations;
- records as well a new 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;
- underlines the vast activities in the organization of international meetings: especially remarkable has been the 2<sup>nd</sup> Galileo-Xu GuangQi Meeting in Nice and Ventimiglia and the program of collaboration 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. Particularly significant are the presence of AEI – Albert Einstein Institute – Potsdam (Germany), Berlin Free University (Germany), CBPF – Brazilian Centre for Physics Research (Brazil), Ferrara University (Italy), IHES – Institut des Hautes Études Scientifiques (France), Indian Centre for Space Physics (India), Nice University Sophia Antipolis (France), Observatory of the Côte d'Azur (France), “Sapienza” University of Rome (Italy), Savoie University (France), Shanghai Astronomical Observatory (China), Stockholm University (Sweden), Tartu Observatory (Estonia); it is very important that such a PhD program is the only one in Physics and Astrophysics to receive the sponsorship of the Erasmus Mundus program of the European Commission and that it recruited the first ten graduate students within such a framework;

- 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 is necessary and it advises the Director to open new appointments;
- noticing that the contribution by the Italian Government has been kept constant since the beginning of the ICRA Net activities started in 2005, following the Art.6 and Art.13 (item v) of the Statute, has reiterated in the Meetings on November 27<sup>th</sup>-28<sup>th</sup> 2007, November 19<sup>th</sup>-20<sup>th</sup> 2008 and December 14<sup>th</sup>-15<sup>th</sup> 2009 a request for the increase of funding for the Italian contributions; in view of all the above very significant developments and commitments toward international partners in teaching and research, it strongly underlines once more the urgency for the increase of the Italian annual contribution of 700,000 Euros requested by the Director for the years 2011 and following.

In conclusion, in this difficult period for the development of research in science and technology, it is with great satisfaction that the Committee notes the very considerable progress of ICRA Net since last year. It has had a detailed report by the Director, Prof. Remo Ruffini, on the establishment of a stronger and wider link with rapidly developing Countries such as Brazil and India. The treaty with Brazil has proceed very rapidly and future strengthening of ties with India appears on course.

A major new aspect of the ICRA Net activity has been the start of the Erasmus Mundus Program of the IRAP PhD, jointly with the Universities in the European Union and Brazil, Armenia, China, and India. The arrival of ten young students 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.

We also notice the steep learning curve of the entire ICRA Net group led by its Director in clarifying the subjects of research and their goals in pursuing them.

Given the strength of the Organization, we feel free to comment on their results with the intent of driving for excellence. The support of the Italian Government, that has been essential to these efforts, is gratefully recognized. The Committee reiterates unanimously the above mentioned request by the Director for the increase of the Italian annual contribution due to the current needs of research and teaching activities. The Committee finally wants to recognize the continuously improving tone and content of the scientific discussions and it must credit Prof. Ruffini and his staff with the creative follow up to our recommendations of last year.

The meeting ends at 12:00 am on the December 15<sup>th</sup> 2010 after the reading and unanimous approval of this report.

A handwritten signature in black ink, appearing to read 'Riccardo Giacconi', with a long horizontal flourish extending to the right.

Prof. Riccardo Giacconi  
Chairman of the ICRA Net Scientific Committee