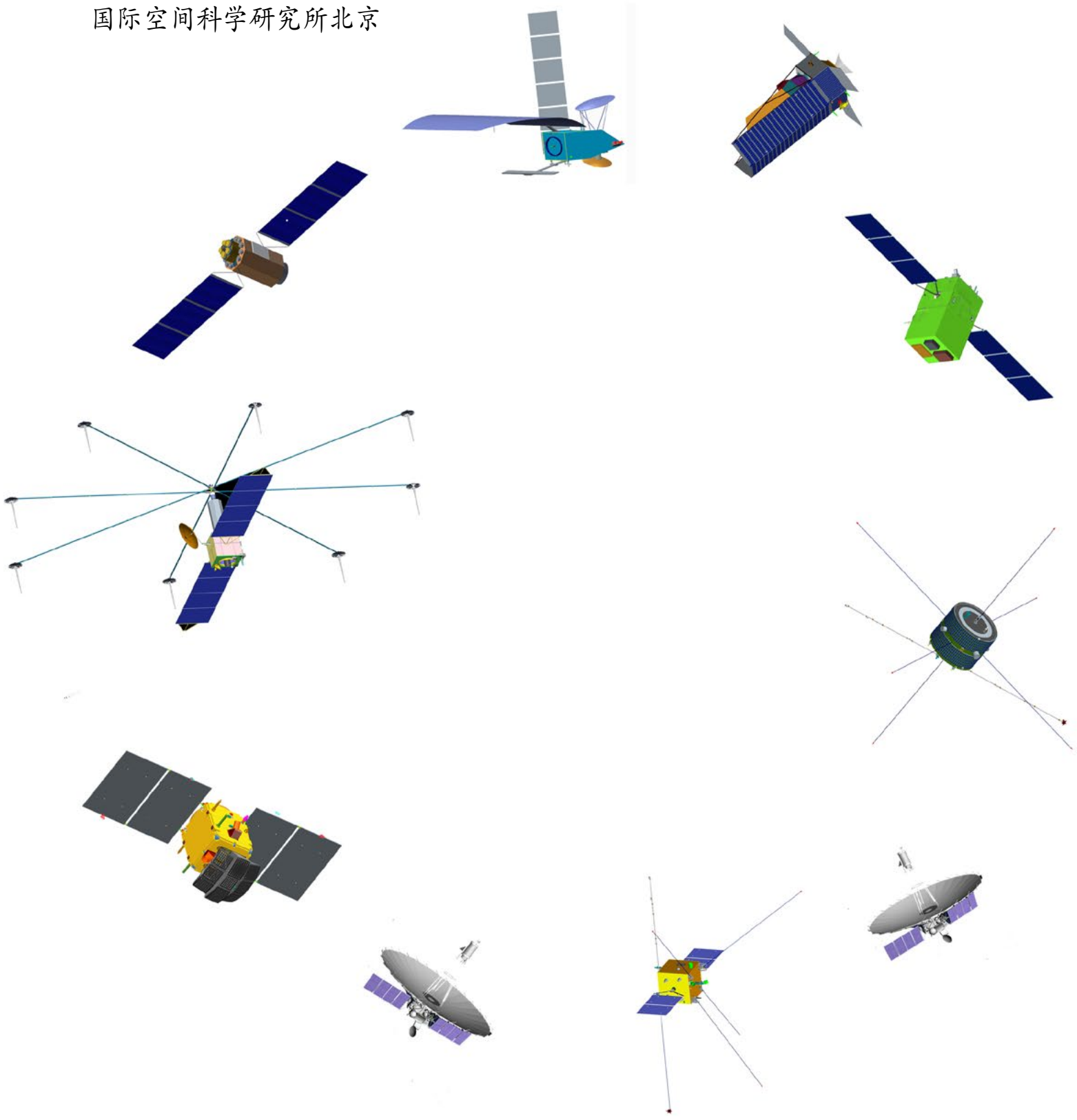
INTERNATIONAL SPACE SCIENCE INSTITUTE - BEIJING

国际空间科学研究所北京



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Front Cover

The image on the cover shows ten satellites representing the eight selected candidate missions for advanced studies in the space science program of the Chinese Academy of Sciences.

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MESSAGE FROM THE CHAIRMAN OF THE BOARD OF TRUSTEES

More than a year ago, a new institute, the International Space Science Institute – Beijing (ISSI-BJ), was inaugurated on July 16, 2013. Since then, we have seen ISSI-BJ growing well and becoming a wonderful platform for the international space science communities, which is both the objective of ISSI in Bern and also this institute in Beijing.

The idea to establish ISSI-BJ goes back to my visit of ISSI Bern in October 2011. It surprised me that a small organization, with less than 20 staff members, has such a good performance attracting nearly 1,000 top-level scientists from all over the world every year in different disciplines of space science to do cutting-edge research and to discuss the frontier topics together. Of course, my positive impression also came from the institute's outstanding outcomes of both publications and reports, which has a significant influence on the space science communities.

During this visit, I proposed the initiation of establishing a branch in Beijing. I discussed with Professor Roger-Maurice Bonnet, then the Executive Director of ISSI. We both agreed that such a new institute could contribute to the international space science community, to the development of space science in China and of course to the development of ISSI itself.

A solid action was taken in February 2012, when Mr. Simon Aegenter, Chair of the ISSI Board of Trustees, and Professor Roger M. Bonnet, the Executive Director of ISSI visited the National Space Science Center (NSSC) in Beijing. We discussed the implementation to establish ISSI-BJ and signed the memorandum of understanding for cooperation. In November 2012, I presented a formal proposal of ISSI-BJ at the Board of Trustees meeting of ISSI. It was certainly adopted by the members. After this, the preparation of the new institute started, including the construction of the premises, seeking of the executive director and establishment of the management team. In April 2013, the ISSI Board confirmed the status of ISSI-BJ and agreed that ISSI-BJ can share the name, the logo and the tools with ISSI.

After its inauguration on July 16, 2013, ISSI-BJ quickly became an ISSI-like institute but with its own characteristics. You will read all its activities in this report. The message I would like to impart to you here is, that what you have seen till now is just the beginning. There is still a great potential for development. On the one hand, China is developing very fast which provides great opportunities to invest in space science satellite missions. On the other hand, a fast growing space research community in China needs to talk with their colleagues abroad. The most efficient way is to go to ISSI-BJ. For the same reason, space researchers outside of China may find new opportunities here with both missions and people. I would like to express, that everyone is welcome at ISSI-BJ. It is a purely international, and multi-lateral, platform. Science is freely discussed without disturbances. Please come to visit us and give your contributions on space science.

I would also like to take this opportunity to thank all employees of ISSI-BJ for their excellent work, especially the Executive Director, Professor Maurizio Falanga, for his excellent work during the first year! I also should like to thank ISSI and the Science Committee for their contribution to our science program. Thanks should also be given to all financial supporters of ISSI-BJ. Their names are listed on our webpage, and therefore they are not mentioned one by one here. To continue and expand the success, more financial supports are certainly essential. For this reason, I welcome all potential sponsors and am looking forward to having you as new members of our board in the near future.

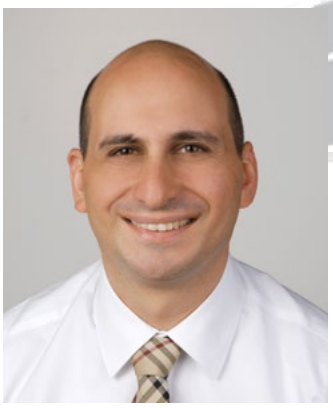
Ji Wu
Beijing, February 2015

MESSAGE FROM THE EXECUTIVE DIRECTOR

I am most pleased and honored to write this message for the first edition of the International Space Science Institute in Beijing (ISSI-BJ) annual report. In July 2013 a new scientific, and I would also say social, reality appeared in the Chinese capital: The International Space Science Institute in Beijing. ISSI-BJ arose out of an agreement between the International Space Science Institute (ISSI) in Bern, Switzerland, and the National Space Science Center, Chinese Academy of Sciences (NSSC, CAS). It was decided, for the first time in the history of ISSI, to share the name, the same scientific committee, the same study tools, and other information of mutual relevance and interest.

My first thoughts are dedicated to Professor Johannes Geiss, an outstanding space physicist pioneer and the founding father of ISSI. Today, ISSI is flourishing and the leading place for topical international space science workshops and team meetings, bringing together every year nearly 1.000 scientists from all over the world. Some of the keywords for the success of ISSI are: interdisciplinary, international, informal, neutral, and science led only. However, in my view, these keywords also encapsulate the philosophy of Johannes Geiss' vision. The same vision has now been exported to China, and in this context ISSI-BJ should feel obliged to follow the spiritus rector of Johannes Geiss, but also find its own identity. Of course, the credit to recognize the historical moment and importance to have an ISSI in Beijing goes to the Director General of NSSC, Professor Ji Wu, the former ISSI Executive Director Professor Roger-M. Bonnet and to the new ISSI Executive Director Professor Rafael Rodrigo who followed up and implemented the agreement.

Since the inauguration ceremony of ISSI-BJ, rapid progress has been made such as setting up a team of staff members, office rooms and administration, and the implementation of a scientific program. An important aim of ISSI-BJ is to make the Forums' discussions and recommendations accessible to the scientific community and the public. Therefore, a new ISSI-BJ magazine has been created, called TAIKONG. Taikong means outer space in Mandarin and encapsulates Chinese developments in space sciences. ISSI-BJ also extends its activities beyond its walls to reach the general public interested in space sciences promoted under the Understanding Science seminars. Two such popular science seminars have been successfully held at a coffeehouse in the university area of Beijing in a relaxed atmosphere.



This new reality, ISSI-BJ, considered as an open-minded international platform has been noticed also by the media in China (and beyond). Since China is opening up to shared objectives in the international arena of space science research, ISSI-BJ will always keep the doors open to the media in order to contribute, in its small way, to this process by informing the general public in China and elsewhere about the international activities taking place at ISSI-BJ.

Space research has progressed, through its many successes, to a point where international and even global cooperation has become mandatory. ISSI-BJ should be an important platform of international collaboration in space sciences, but should also be considered as an open window in Beijing to the world to be used to build new friends and collaborators involved at any level and in all kind of space sciences research or even space science missions. This is important because it helps to gain knowledge from past experiences and therefore to prevent duplicating anything that has already been done, but to produce innovation.

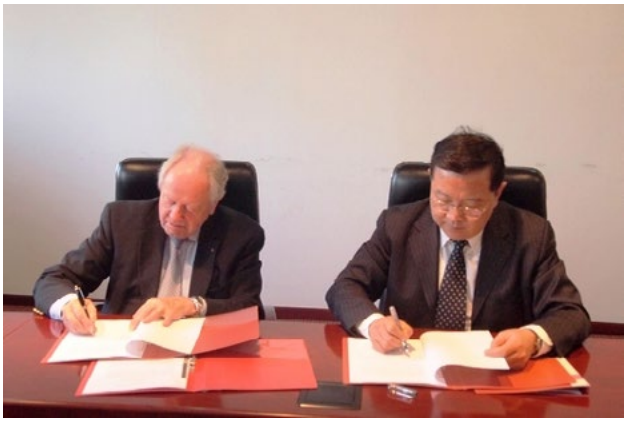
I am proud to say that ISSI-BJ is well ahead with the promised implementation strategies, and therefore, I would like to thank warmly the very productive and efficient ISSI-BJ staff Xiaolong Dong, Lijuan En, Ariane Dubost-Bonnet, and Sabrina Brezger who with dedication, professionalism, and enthusiasm facilitated and contributed significantly to building up the new institute. I would also like to extend my thanks and appreciation to NSSC in providing ISSI-BJ with the technical support, human resources, General Affairs offices, venue, and much more, and to the ISSI staff for all their help and support.

M. Falanga

Maurizio Falanga
Beijing, February 2015

ABOUT ISSI-BJ

The International Space Science Institute Beijing (ISSI-BJ) is a non-profit research institute jointly established by the National Space Science Center (NSSC) and the International Space Science Institute (ISSI) with the support of the International Cooperation Bureau and the Strategic Priority Program on Space Science. ISSI-BJ is a close cooperation partner of ISSI in Bern. Both institutes share the same Scientific Program Committee, the same study tools, and other information of mutual relevance and interest. However, both use independent operational methods and different funding sources.



Signature of the Memorandum of Understanding between ISSI and NSSC on July 16, 2013. Left Simon Aegeter former ISSI BoT Chairman, and right Ji Wu, Director General of NSSC, CAS

The main mission of ISSI-BJ is to contribute to the achievement of a deeper scientific and technological understanding of future space missions as well as of the scientific results from current and past missions through multidisciplinary research, possibly involving whenever felt appropriate, ground based observations and laboratory experiments. The Program of ISSI-BJ covers a widespread spectrum of space science disciplines, including solar and space physics, planetary science, astrobiology, microgravity science and earth observation. It offers a complement to the ISSI program with special emphasis on future scientific opportunities.

History

In October 2011, Professor Ji Wu, the Director General of the National Space Science Center (NSSC), visited the International Space Science Institute (ISSI). He proposed to establish an International Space Science Institute in Beijing (ISSI-BJ) during his visit.

In February 2012, Simon Aegeter, Chairman of ISSI's Board of Trustees and Roger-Maurice Bonnet, Executive Director of ISSI, visited NSSC for further discussion. Both parties exchanged opinions and signed the Memorandum of Understanding (MoU) which was approved by the ISSI Board of Trustees (BoT) in June 2012.

On April 19, 2013, the BoT of ISSI signed the Agreement of Cooperation with NSSC and approved the implementation plan of cooperation between ISSI and ISSI-BJ. It was decided, for the first time in the history of ISSI, to share the name with another institution. This decision was made because it was convinced that NSSC is an extremely trustworthy partner. According to this decision, ISSI and NSSC moved forward on the implementation plan for establishment of ISSI-BJ.

The inauguration ceremony of ISSI-BJ was held at the NSSC in Beijing on July 16, 2013. Professor Rafael Rodrigo, Executive Director of the International Space Science Institute, and Professor Wu Ji, Chairman of the BoT of ISSI-BJ and Director General of NSSC, jointly inaugurated the new institute located on the 3rd floor of the NSSC building.

Ji Wu, Director General of NSSC, CAS, and Rafael Rodrigo, Executive Director of ISSI, at the opening ceremony of ISSI-BJ on July 16, 2013

ISSI-BJ'S SCIENTIFIC PROGRAM

The Program and the Tools

Workshops are study projects on specific scientific themes, selected in consultation with the Science Committee. The duration of Workshops is typically one week. Workshops are organized by a group of conveners who define the theme, set up the program, and list the group of participants. Participation is by invitation only. The size of any Workshop is usually limited to a maximum membership of 45 including a few young scientists. The results of the Workshops are published as refereed papers in issues of Space Science Reviews and in parallel as volumes of the Space Science Series of ISSI-BJ (SSSI).

Working Groups are set up by the Directorate for specific tasks, often of technical nature. Their life time can be of several years. The results of the Working Groups are published as volumes of ISSI-BJ Scientific Report Series (SR) or in the scientific literature.

International Teams follow a strict bottom-up approach whereby in response to a specific call issued every year at the beginning of January, scientists can propose projects corresponding to topics, which are broadly identified in the Call. The reviewing and ranking process is the responsibility of the Science Committee.

International Teams are composed of about 5-15 scientists from different institutions, nationalities, and expertise. They meet at ISSI-BJ for one or several periods of time of typically one week. They are active for 12-18 months. Their project, often involves data or modelling work. Their activity is directed and organised by a team leader, generally the initiator of the proposal. Teams are largely independent in the execution of their project, but maintain close contact with ISSI-BJ.

Forums are informal and free debates among 20-25 high-level participants on open questions of scientific or science policy nature. A Forum may lead to formal recommendations or decisions depending upon the topic or issues addressed in the Forum. The TAIKONG magazines constitute the output of the Forums organized at ISSI-BJ. It reports the contents of the Forums and reflects in a neutral way the Forum discussions and advises from all the participants.

Senior and Junior Visiting Scientists carry out scientific work in collaboration with, or under the supervision of the ISSI-BJ scientific staff on matters directly or indirectly connected with the ISSI-BJ projects. They contribute to the scientific environment at ISSI-BJ in complement to the ISSI-BJ scientific staff.

Understanding Science is organized by the UK Royal Society of Chemistry, the Institute of Physics and ISSI-BJ. Its goal is to make a broader public aware of today's accomplishments in research through short scientific lectures in English (popularization talks) as well as to have an opportunity to talk with either international or Chinese scientists currently carrying out research in China, in a relaxed atmosphere.

ISSI-BJ Summer School: It is intended to promote a biennial Summer School on space sciences and space science missions for international students. The School will teach the students to develop the connections between scientific objectives and requirements, mission and spacecraft design and mission cost. The aim is to develop a comprehensive approach for designing a space science mission. The students will be provided with the required scientific background relevant to produce a report, outlining a possible space science mission concept.

How to use the ISSI-BJ Tools

International Teams: A joint call for proposals is released by ISSI/ISSI-BJ every year in January. These proposals are evaluated, prioritized and recommended to ISSI-BJ by the Science Committee of ISSI (shared by ISSI Bern and ISSI-BJ). The activity is directed and organized by a team leader who is also the initiator of the proposal to ISSI-BJ. They hold a series of two to three one-week meetings over a period of 12 to 18 months. The results of Teams are published in scientific journals.

Workshops, Working Groups and Forums: There is no annual call. The scientific community can put forward suggestions at any time on future Workshops, Working Groups, and Forums by submitting a summary of maximum one page, explaining the proposal topic, the rationale to organize the event at ISSI-BJ and the list of proposers.

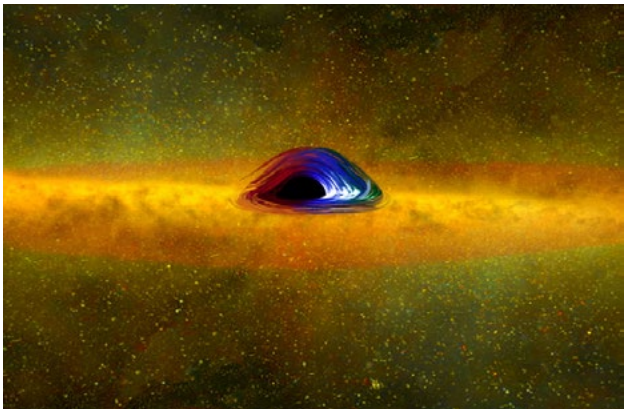
FORUMS

As part of the institute's program, ISSI-BJ organized a series of eight forums during 2013 and 2014 to discuss the science and related technology to archive the scientific goals for future candidate missions within the Space Science Strategic Pioneer Project of the Chinese Academy of Sciences. A ninth forum was held in November 2014 to review the achievements of ISSI-BJ so far and discuss its future orientations and development. All in all, more than 180 experts participated in these nine forums in Beijing.

X-ray Timing and Polarization/ GRAVITAS

26-27 June 2013

Conveners: Shuangnan Zhang (Institute of High Energy Physics, CAS, China), Kirpal Nandra (Max Planck Institute for Extraterrestrial Physics, Germany)



An Artist's concept of the relativistic flow of matter around a fast rotating Black Hole in the center on an accretion disk (Credit: Max Planck Institute for Extraterrestrial Physics)

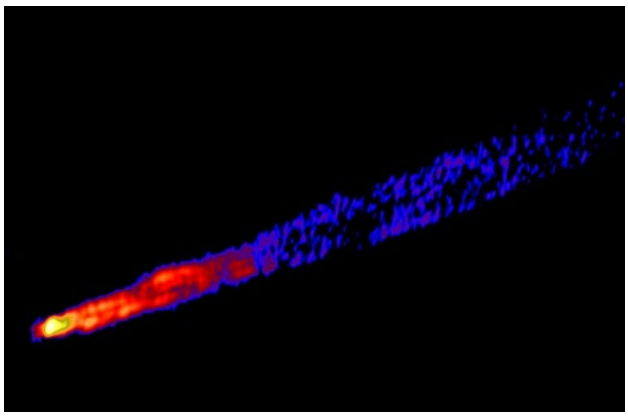
The XTP/GRAVITAS Forum was the first of a series of science forums organized at ISSI-BJ.

The Chinese Academy of Sciences (CAS) has started to develop a future X-ray astronomy mission, called X-ray Timing and Polarization (XTP). XTP is now funded for key technology demonstration and mission definition study. In the mean time, an X-ray astronomy mission called GRAVITAS has been proposed in Europe. After several discussions between scientists from CAS and the Max-Planck-Institute fuer extraterrestrische Physik (MPE), it has been recognized that the two projects, XTP and GRAVITAS, share some considerable synergies in terms of their scientific objectives and technical basis. Therefore, CAS and MPE have set up a joint working group in October 2012 to explore the opportunity to merge XTP and GRAVITAS into a joint China-Europe X-ray astronomy mission for a launch around 2020.

During the two-day meeting, presentations and discussions were given on XTP/GRAVITAS scientific objectives, payload key technologies, possible scenarios of XTP/GRAVITAS merge and other international cooperation possibilities. The interaction between the scientists contributed to define more precisely the science objectives and the design of this future collaborative project. This meeting helped to promote international cooperation between China and Europe, not only on a mission level, but also in research and development of instrument technologies.

Space Very Long Baseline Interferometry

16-18 September 2013



2cm Very Long Baseline image of the inner jet of the radio galaxy M87 (Courtesy of the MOJAVE Collaboration and NRAO)

Conveners: Leonid Gurvits (Joint Institute for VLBI, Netherlands), Xiaoyu Hong (Shanghai Astronomical Observatory, CAS, China) Kenneth Kellemann (National Radio Astronomy Observatory, USA)

Discussing the requirements to achieve a successful Space Very Long Baseline Interferometry (SVLBI) mission has been the main objective of the forum organized by ISSI-BJ.

China is planning a future SVLBI mission; its final proposal is expected to be submitted by fall of 2015. Chinese scientists and engineers have been discussing the science goals of the mission and the design of the satellite for some time, therefore, the topic presents an ideal candidate for an ISSI-BJ forum. The planned observing frequency is up to 43 GHz (Q band), which is new to space VLBI. Combining this frequency with a baseline of up to 60,000 km, the mission would detect a launching point of the jet from a black hole situated at the central region of a galaxy. The envisioned Chinese VLBI system might even capture an image of the outer edge of an accretion disk. Astronomical masers in our Galaxy and some extragalaxies are also interesting science targets, in addition to a number of other possible ones currently being explored.

During the meeting presentations were given on the complementary SVLBI missions such as VSOP or RadioAstron. Afterwards, the SVLBI proposal and the science goals were exposed and discussed as well as the possibility of international collaborations. The interaction between the scientists contributed to define the science objectives and the success criteria of the mission more precisely.

Magnetosphere, Ionosphere and Thermosphere

31 October - 1 November 2013

Conveners: Chi Wang (NSSC, CAS, China), Berndt Klecker (Max Planck Institute for Extraterrestrial Physics, Germany), Andrew Yau (University of Calgary, Canada), Yong Liu (NSSC, CAS, China)

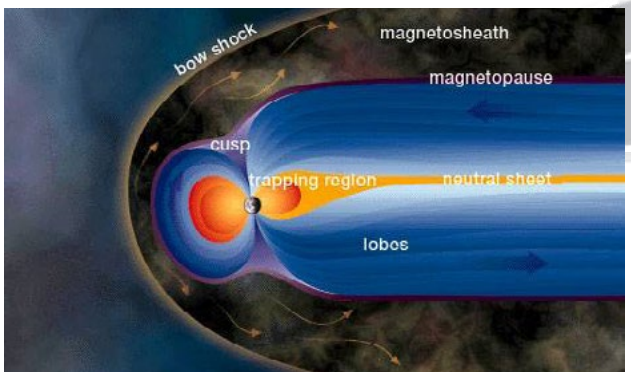


Illustration of the magnetosphere with several of its key components labeled (Credit: NASA)

Magnetosphere, Ionosphere and Thermosphere (MIT) is one of the candidates missions of the Intensive Preparative Study of Future Space Science Missions, which aim at selecting appropriate new space science missions to be implemented during the 13th Five-Year Plan period (2016-2020). This mission aims at investigating the coupling of the magnetosphere, ionosphere and thermosphere. The oxygen outflow from the ionosphere into the magnetosphere is considered to be a key question of the MIT coupling. One reason is that the ion outflow plays a very important role in the magnetic storm, the second reason is that the outflow affects the period of the saw tooth oscillation.

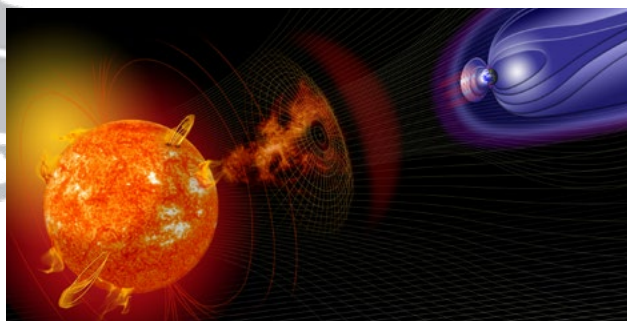
The forum discussion covered a broad aspect of topics: the history, current status and future of MIT mission, overall design of the project, scientific objectives, key techniques and potential international cooperation. It focused on key questions related to the coupling of magnetosphere-ionosphere-thermosphere and techniques to develop space-borne particle detectors. The participants raised a lot of constructive comments and instructive suggestions to the project organization.

Solar Polar ORbit Telescope

24-25 November 2013

Conveners: Ji Wu (NSSC, CAS, China), Roger Bonnet (ISSI, Switzerland), Maurizio Falanga (ISSI-BJ, China), George Parks (UC Berkeley, USA) and Ying Liu (NSSC, CAS, China)

The Forum on the Solar Polar Orbit Telescope (SPORT) followed a previous forum on the 'Future



Artistic illustration of the dynamic Sun-Earth system (Credit: NASA)

of Out –of –the-Ecliptic (OOE) and In Situ Observations of the Sun' organized by the International Space Science Institute (ISSI) in Bern in 2010.

SPORT was originally proposed in 2004 by NSSC, CAS, and is now under a scientific and engineering background study in China. SPORT will carry a suite of remote-sensing and in-situ instruments to observe coronal mass ejections (CMEs), solar high-latitude magnetism, and the fast solar wind from a polar orbit around the Sun. It is intended to be the first mission that carries remote-sensing instruments from a high-latitude orbit around the Sun, the first mission that could image interplanetary CMEs at radio wavelengths from space, and the first mission that could measure solar high-latitude magnetism leading to eruptions and the fast solar wind. SPORT would provide a unique opportunity to study CME propagation through the inner heliosphere from a vantage point at high latitude and investigate solar high-latitude magnetism giving rise to eruptions and the fast solar wind.

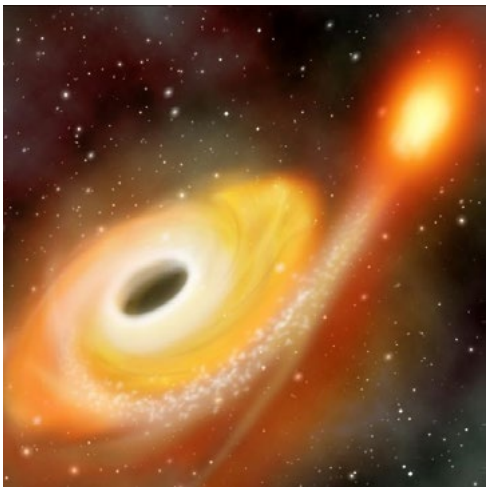
The Forum covered the current missions and mission concepts of exploring the inner heliosphere (e.g., Solar Probe Plus, Solar Orbiter, SPORT, Interhelioprobe, Solar Polar Imager), relevant scientific research, and instrumentation techniques. It was agreed that these satellite missions should be coordinated within an 'International Living with a Star (ILWS)' framework. Particularly, all participants comprehensively discussed the scientific objectives, satellite orbit design, satellite platform, and payload configuration of the SPORT mission. Such a discussion contributes to SPORT's scientific and engineering background studies in China. This Forum significantly enhanced international cooperation and communication of the SPORT team, and increased the visibility worldwide of SPORT.

Exploring the Dynamic X-ray Universe

6-7 May 2014

Conveners: Weimin Yuan (NAOC, China), Julian Osborne (Leicester University, UK), Neil Gehrels (NASA/GSFC, US), George Fraser (†19th March, 2014, Leicester University, UK), Shuangnan Zhang (IHEP, China), Maurizio Falanga (ISSI-Beijing, China)

The Forum mainly discussed the importance of the scientific use of soft X-ray wide-field monitoring observatories in the Violent Universe domain as well as the technologies. In the soft X-ray regime, the novel micro-pore lobster-eye optics provides a promising technology to realize, for the first time, focusing X-ray optics for wide-angle monitors to achieve a good combination of sensitivity and wide field of view. In this context, a soft X-ray all sky monitor called Einstein probe has been proposed and selected as one of the candidate missions for advanced studies in the space science program of CAS.



Artist's impression of a stellar tidal disruption event by a massive black hole (Credit: NASA)

During the meeting the participants examined the prospects of detecting in X-rays the counterparts of gravitational wave events found with the next generation of GW detectors. In addition, this meeting has led to a better definition of the objectives of the mission. Besides all those very stimulating discussions on science and technology, it has caused international publicity for EP and in a way accelerated the project to a higher momentum.

Micro-arcsecond Astrometry Exoplanets Detection around Nearby Stars

22-23 August 2014

Conveners: Ding Chen (NSSC, China), Michael Shao (Caltech, USA), Doug Lin (UCSC, USA), Ji Wu (NSSC, China), Maurizio Falanga (ISSI-Beijing, China)

The Forum's key aims were to discuss the current status as well as visions of the detection and characterization of planetary systems consisting in a mixed cortege of terrestrial and giant planets, with a special regard to Earth-like planets orbiting in the habitable zone of Sun-like stars. The debate mainly focused on the Space Micro-arcsecond Astrometry to Search for the Terrestrial Exo-Planets (STEP mission), one of the candidate missions for advanced studies in the space science program of CAS, with regard to complementary missions.

After starting with an overview of the exoplanet detection, the forum continued with a discussion on the key science of the terrestrial planets, its occurrence and evolution as well as the habitable zone of the explanatory system. As a main goal of the forum, possible synergies through complementary missions and international collaboration were evaluated. During the very successful forum, the participants critically yet constructively discussed all of STEP's strengths and to what has to be further improved.

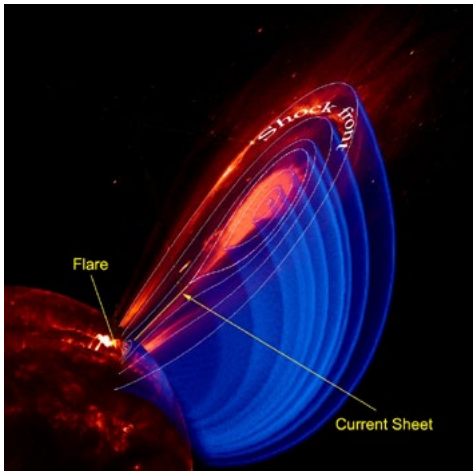
Extra-Solar System (Credit: NASA)

Exploring Solar Eruptions and their Origins

30-31 October 2014

Conveners: Weiqun Gan (PMO, China), Säm Krucker (FHNW, Switzerland / UC Berkeley, USA), Haimin Wang (NJIT, USA), Yihua Yan (NAOC, China), Maurizio Falanga (ISSI-Beijing, China)

The meeting aimed at discussing the current status of the research progress on the relationships among magnetic fields, solar flares and coronal mass ejections and identifying relevant results acquired by current missions. The debate mainly focused on the Advanced Space-based Solar Observatory (ASO-S), its key science goals and mission definition, as well as the key technological issues. ASO-S is one of the candidate missions for advanced studies in the space science program of CAS, with regard to complementary missions.



An artistic view of a solar flare and a possible magnetic field configuration (Credit: modified from NASA's Solar Sentinels STDT report)

After recognizing the key scientific objectives for exploring solar eruptions, the forum continued with an overview of the achievements of current relevant missions like Solar Orbiter and Solar Dynamics Observatory. Furthermore, new possibilities for observations of solar active phenomena were being discussed among the experts, to finally review the planed instruments and satellites for ASO-S. The scientists concluded the very successful meeting with defining the mission's requirements.

Brainstorming on ISSI-BJ

18-19 November 2014

The Agreement of Cooperation between ISSI and ISSI-BJ adopted in July 2013 will remain valid for a period of two years until 30 June 2015. In order to ensure the continuity of ISSI-BJ, new regulations will have to be adopted by its Board of Trustee prior to 1 July 2015. In that perspective, ISSI-BJ organized a forum to review the achievements of ISSI-BJ and discuss its future orientations and development. Internal and external experts from ISSI, NSSC, CAS, ESA, the Kavali Institute at the Peking University, Max Planck Society, IKI, APSCO, and the National Astronomic Observatory brainstormed strategies for ISSI-BJ. Elements of particular importance were ISSI-BJ's relationships with ISSI and NSSC, the role for ISSI-BJ in the CAS program and in China, as well as enlarging the number of new sponsors from government sources, international or private institutions. The outcome was highly prosperous and will help to strengthen ISSI-BJ position as a scientific exchange platform for the Chinese and international Space Science communities.

Participants of the ISSI-BJ Brainstorming Forum

Synergetic Observations of the Water Cycle

20-21 November 2014

Conveners: Jiancheng Shi (RADI, China) Xiaolong Dong (NSSC and ISSI-BJ, China) Ji Wu (NSSC, China) Lennart Bengtsson (University of Reading, UK) Maurizio Falanga (ISSI-BJ, China)

Illustration of the Water Cycle (Credit: WCOM group at RADI, CAS)

The forum was designed to discuss key scientific questions and new perspectives in the research of responses and feedbacks of the water cycle to global change. Defining requirements of data assimilation in the modeling of the global water cycle as well as identifying the demand for observations and information retrieval of key parameters of the global water cycle were the core focus of the forum. The debate laid emphasis on the global water observation mission (WCOM), one of the candidate missions for advanced studies in the space science program of CAS, with regard to complementary missions. The mission's science scenarios and its definition, as well as some of the technical and information retrieval issues were discussed thoroughly.

After an overview of water cycle observations in the US, Europe and China, the forum continued with a discussion on the key science of water cycle observation and the required instruments and capability. As a main goal of the forum, possible synergies gained through complementary missions and international collaboration were evaluated.

The Disk in Relation to the Formation of Planets and their Protoatmospheres

25-29 August 2014

Conveners: Willy Benz (University of Bern, Switzerland), Michel Blanc (IRAP/OMP, France), Ding Chen (NSSC, CAS, China), Maurizio Falanga (ISSI-BJ, China), Malcolm Fridlund (DLR, Germany), Manuel Guedel (University of Vienna, Austria), Gregory Herczeg (Beijing University, China), Helmut Lammer (Austrian Academy of Sciences, Austria), Doug Lin (University of California Observatories, USA), Michael R. Meyer (ETH, Zurich, Switzerland), Rafael Rodrigo (ISSI, Switzerland), Stéphane Udry (Geneva Observatory, Geneva, Switzerland)

The Disk in Relation to the Formation of Planets and their Protoatmospheres science meeting was the first workshop held at ISSI-BJ and was organized in cooperation with ISSI.

Preceding the workshop, a forum on "The Science of Exoplanets and Their Systems" had been organized by ISSI in Bern at the end of 2012, with the participation of about 25 of the leading experts in the field. The forum had discussed in detail what the avenues for a new progress in our understanding of exoplanets are, their distribution, their formation and their characteristics. One of the planned outcomes of the forum was the identification of "The Disk in Relation to the Formation of Planets and their Protoatmospheres" as a key subject for a future workshop. Indeed, the interrelationship between circumstellar disks, their evolution and their relation to forming planets and their protoatmospheres remains poorly understood despite an increasing body of modeling and observational data. Therefore, ISSI-BJ and ISSI jointly organized this workshop address this matter in depth covering the different aspects of the issue.

The workshop was divided into six main sessions, focusing on the following topics: "On the Formation of the Planets in Protostellar Disks"," From the Disk to the Planetary System", "Disk Dispersal", "Atmosphere Formation and Evaluation", "Debris Disk" and "The Way Forward". All available scenarios for the joint evolution of disks, planets and atmospheres in the light of the most recent observations and of available models were revisited. The lively debates contributed to a very successful workshop where the participants critically yet constructively discussed the status quo of the research on the formation of planets and tried to give a future outlook on where future missions, new instrumentation and observing methodologies, new analysis techniques and the development of theory might lead us to.

Under its special program for supporting young scientists, ISSI-BJ invited six early career scientists, within two years of their PhD, to take a full part in the Workshop. The young scientist session on the afternoon of the fourth workshop day opened new perspectives and was highly appreciated by all participants.

Workshop participants on "The Disk in Relation to the Formation of Planets and their Protoatmospheres" in Beijing

INTERNATIONAL TEAMS

In January 2014 ISSI-BJ and ISSI for the first time jointly released the Call for International Teams in Space and Earth Sciences to invite proposals for study projects from internationally collaborating teams of scientists from different institutions.
The Call was open to scientists of any nationality actively involved in the following research fields:

1. Space Sciences (Solar and Heliospheric Physics, Solar-Terrestrial Sciences, Space Plasma and Magnetospheric Physics, Planetary Sciences, Astrobiology, Cosmology, Astrophysics, and Fundamental Physics in Space)
2. Earth Sciences using space data

In response to this call ISSI-BJ received ten excellent team proposals. Six of them have been selected by the Science Committee, and they will hold a series of two one-week meetings at the institute in Beijing. Three out of these six teams will share the meetings between Bern and Beijing.

Approved Teams 2014

1. **New Approach to Active Processes in Central Regions of Galaxies**
   Team leader: Kwong-sang Cheng (The University of Hong Kong, China) & Vladimir Dogiel (Lebedev Institute of Physics, Russia)

2. **Anisotropy and Intermittency in Solar Wind Turbulence**
   Team leader: Christopher Chen (Imperial College London, UK) & Jiansen He (Peking University, China)
   (ISSI-BJ & ISSI Team)

3. **Remote Sensing Image Data Assimilation for Pollution Monitoring: Application to Urban and Ocean Pollution**
   Team leader: Thomas Corpetti (CNRS, France)

4. **Small Scale Structure and Transport During Magnetopause Magnetic Reconnection: from Cluster to MMS**
   Team leader: Malcolm W. Dunlop (Rutherford Appleton Laboratory, UK)
   (ISSI-BJ & ISSI Team)

5. **Coronae in the X-ray Flashlight**
   Team leader: Peter Kretschmar (ESA-ESAC, Spain)

6. **Aeronomy of Terrestrial-sized Bodies**
   Team leader: Ingo Mueller-Wodarg (Imperial College London, UK)
   (ISSI-BJ & ISSI Team)

17 November - 9 December 2014

Professor Mario J. Pinheiro, University of Lisbon, Portugal; Request to share his time between ISSI-BJ (3 weeks) and ISSI (3 weeks) to work on a theoretical model for accretion disks

17-28 November 2014

Vittorio De Falco (Ph.D. Candidate), University of Basel / ISSI, Switzerland

Professor Mario J. Pinheiro from University of Lisbon, Portugal

Interview with Mario J. Pinheiro & Vittorio De Falco

Could you briefly explain the project you were working on while staying at ISSI-BJ?

Mario J. Pinheiro & Vittorio De Falco: We are working on an accretion disc model around compact objects like black holes or neutron stars. We consider the accretion discs formed in a binary system consisting of a compact object and a main sequence star orbiting around their common centre of mass. The star increases in size during its evolution and it may at some point exceeds its Roche lobe (the region of space around it within which orbiting material is gravitationally bound to that star), meaning that some of its matter ventures into a region where the gravitational pull of its companion star is larger than its own. So it starts to form a structure with this diffuse material in orbital motion around the massive central body. The gravitational and frictional forces induce matter in the disk to spiral inward towards the central body; furthermore they compress and raise its temperature causing the emission of electromagnetic radiation.

The first important work on this subject dates back to 1973 with a paper by Shakura and Sunyaev that is a great achievement in the understanding of this phenomenon. Since then, new models were proposed and interesting observational discoveries were made. Nevertheless, there are still different open questions due to the lack of accurate data and exhaustive explanations. Our intent is to propose a new model based on the classical theory of electrodynamics and plasma physics. The key issue resides on replacing the viscosity (that regulates the accretion discs' formation) with its effects. In this work we decided to make some assumptions in order to handle with simple equations and to catch mainly the physical meaning in terms of reasonable explanations. Another valid point of our work is that we outlined the global and whole phenomenon from the starting formation to the ending astrophysical jets, rediscovering and confirming some results obtained observationally.

Why did you choose the visiting scientist program at ISSI-BJ for your research?

Mario J. Pinheiro: I have been at ISSI in Bern before where I started a very interesting collaboration with Prof. Maurizio Falanga. He is a well-known astrophysicist and because my domain is plasma physics, we understood that we could bring our knowledge together to work on common ground. As I was on sabbatical leave, I proposed to Prof. Falanga to pursue our work at ISSI-BJ. This was a strong call to me because China is a rapidly evolving country and I was curious to see how science was progressing. It was a demanding experience because Beijing is huge; it's the core of China with its great culture and the promise of a future for a great civilisation.

Vittorio De Falco: I work as a PhD student at ISSI in Bern and I was curious to know how ISSI-BJ was. There I found a friendly and efficient place to work at and I met nice people. A further reason was to enlarge my horizon of experience toward China, a place far away from Europe and completely different. This research stay gave me the opportunity to

Ph.D. Candidate Vittorio De Falco, University of Basel / ISSI

discovery a new culture and a different approach to science, to meet other scientists, to exchange ideas, to make collaborations and to enrich my scientific and personal background.

How was the cooperation between you initiated?

Mario J. Pinheiro & Vittorio De Falco: Our collaboration started at ISSI in Bern in June 2014 when Mario Pinheiro was a visiting scientist for about three weeks. After some introductory discussions we came to the understanding that we share the same interests. With the help of Maurizio Falanga we planned to start our actual collaboration.

How was your experience of working at ISSI-BJ and also Beijing?

Mario J. Pinheiro: I was very lucky to start my collaboration with researchers at ISSI-BJ and I am very grateful to all of them, in special to Dr. Dong Xiaolong. It's amazing, at ISSI-BJ we felt as part of a family! Furthermore, I would like to thank Professors Roger-Maurice Bonnet and Rafael Rodrigo, that made this cooperation possible. Their contributions to space exploration and space science are known worldwide and I learned a lot at their public lectures in Beijing, also contributing to the public awareness about the importance of science in our societies. ISSI-BJ is well located in the same building as NSSC, the most important institution in China dedicated to space activities. It's not faraway through fast (and very cheap!) public transportation from any interesting spot in Beijing. The city is very secure and has a huge number of interesting historical sites to visit, naturally. The people are very friendly. The only barrier for me was the Mandarin and the very rare signs in English.

Vittorio De Falco: It was a great experience of working at ISSI-BJ. I received relevant ideas and suggestions to improve our project. It was very useful for me to work with Mario Pinheiro every day learning from an expert how to do research and approach scientific problems. I also had the opportunity to take part in scientific seminaries given by Rafael Rodrigo and Roger Maurice Bonnet and organized by ISSI-BJ and NSSC about the unique space-mission Rosetta, being a milestone in the history of science. I enjoyed my free time to visit Beijing learning more about the Chinese culture and lifestyle. I was extremely happy to be invited and to attend a wonderful bamboo flute concert. It was an unrepeatable experience in my life. I ate different and several kinds of Chinese specialities, but as an Italian I missed my PASTA very much!

How did your project continue after leaving China?

Mario J. Pinheiro & Vittorio De Falco: We are still finalizing some ultimate parts of the paper, but our meeting at ISSI-BJ was very useful to clarify some missing points and to give a final and decisive direction to our project.

What do you think is special about ISSI-BJ?

Mario J. Pinheiro: My time at ISSI-BJ was very profitable to my research project and broadened my cultural views as a world citizen. The working space at ISSI-BJ is located on campus of NSSC, where top level scientists and engineers work intensively on the ambitious Chinese space program. I must confess that at the beginning I felt peculiar because we suddenly were face to face with a very old but very active civilisation, within a crowded city in a rampant progress. But even if we found it strange and mysterious at first approach, afterwards we were fascinated with Beijing, its marvellous people, and the friendly environment, which progressed our work. I certainly hope to return.

Vittorio De Falco: ISSI-BJ is an international institute that gives the possibility to scientists from all over the world (especially young ones) to meet, organize and accomplish projects. This is an important help to facilitate the exchange of ideas and to strengthen the collaborations among scientists.

Playing with Earth Climate. How Long Will We Survive?

8 May 2014

Professor Roger M. Bonnet from the International Space Science Institute held the first Understanding Science lecture organized by ISSI-BJ. Around 50 young people attended the talk on the changing earth climate at the Bridge Café in Wudaokou, Beijing.

The lecture focused on Earth climate change and on the means to address this issue that affects us all. Roger M. Bonnet exposed the impact of human activity on our planet. He questioned human beings' lifestyle, especially growth and the use of natural resources. He finally stressed the importance of taking decisions in the 21st century to ensure the long-term survival of people on Earth. Following this talk, the audience including both Chinese and foreigners asked a number of questions and there were interesting exchanges on this particularly relevant topic in China.

Roger M. Bonnet giving the first Understanding Science lecture organized by ISSI-BJ

Conquering the Comet: The Historic Mission of Spacecraft Rosetta

19 November 2014

Professor Rafael Rodrigo, Executive Director of the International Space Science Institute, gave an Understanding Science Talk on Conquering the comet: the historic mission of spacecraft Rosetta. The Lecture was given at House Café, a coffee-house in Beijing's university district Wudaokou. More than 50 young students listened to Professor Rodrigo's explanation on how the spacecraft for the first time rendezvoused with a comet and successfully placed a lander on the comet's surface.

During his talk, Rafael Rodrigo showed the history of the Rosetta spacecraft – a mission by the European Space Agency – and gave details on its ten year long journey through space to conquer the comet 67P/Tschurjumow-Gerasimenko. He thoroughly clarified why Rosetta's lander Philea didn't touch down at the estimated position and why it cannot be located for the moment. He further emphasized the importance of the mission and the results gained so far about the comet's composition. Investigating how the comet changes and evolves while approaching the Sun will help scientists learn more about the role of comets in the evolution of the Solar System. Following this talk, the audience, including both Chinese and foreigners, had interesting exchanges on the significance of the mission for the future with Rafael Rodrigo.

Rafael Rodrigo discussing the Rosetta mission with the audience

Other events at ISSI-BJ

12 June 2014

Prof. Thierry Courvoisier, President of the Swiss Academies of Arts and Sciences and director of the Data Centre for Astrophysics of University of Geneva, visited ISSI-BJ. Nektarios Palaskas, the Science and Technology Counselor of the Swiss Embassy in China, accompanied the visit.

Prof. Thierry Courvoisier was invited to visit ISSI-BJ and the Concurrent Design Facilities in NSSC. He expressed his keen interest in the "ambitious Chinese space missions" and expected more scientific exchanges could be made between the two countries. In this regards, ISSI-BJ gives an excellent platform to facilitate international cooperation.

ISSI-BJ in the media

Interview
"Europeans want to hitch ride on China space rocket"
with Maurizio Falanga
South China Morning Post, 1 December 2013

Interview
"La Internacia Instituto por Spac-scienco en Pekino"
with Maurizio Falanga
El Popola Cinio, 23 May 2014

Article
"中科院部署系外类地行星探测计划搜寻近太阳系类地行星"
Guangming Daily 光明日报, 23 August 2014

Article
"中外学者探讨如何找到系外类地行星"
Science and Technology Daily 科技日报,
26 August 2014

Interview
"携手共探宇宙奥秘"
with Maurizio Falanga
China Science Daily 中国科学报, 9 September 2014

Interview
"Tous ensemble pour la recherche spatiale!"
with Maurizio Falanga
La Chine au présent, 29 September 2014

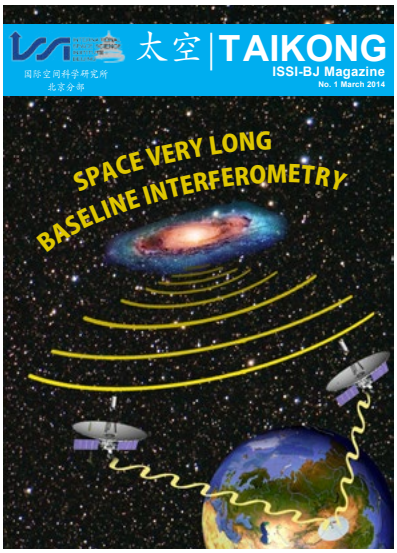
Prof. Maurizio Falanga giving an interview for CRI - China Radio International

Article
"系外行星探测的中国机遇"
China Science Daily 中国科学报,
11 September 2014

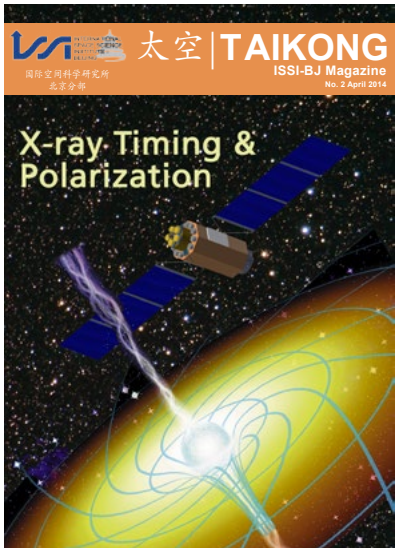
Radio Feature
"Zusammenarbeit statt Konkurrenz: Internationale Weltraumforschung in Beijing"
CRI - China Radio International,
15 November 2014

PUBLICATIONS

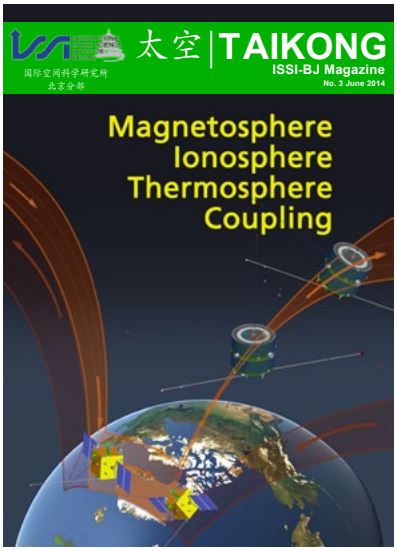
One of the ISSI-BJ aims is to make the forum discussions and its conclusions accessible to the broad scientific communities and the public. Therefore, the knowledge and insight gained from these forums are published in the ISSI-BJ TAIKONG Magazine. In 2013/2014 the first four forums have been published in this newly created magazine and can be found on the ISSI-BJ website www.issibj.ac.cn.



TAIKONG No. 1, March 2014
Space Very Long Baseline Interferometry
Main Authors: Ken Kellerman (National Radio Astronomy Observatory, USA) & Xiaoyu Hong (Shanghai Astronomical Observatory, China)



TAIKONG No. 2, April 2014
X-ray Timing & Polarization
Main Authors: Yongwei Dong (IHEP, CAS, China) & Shuangnan Zhang (IHEP CAS,China)

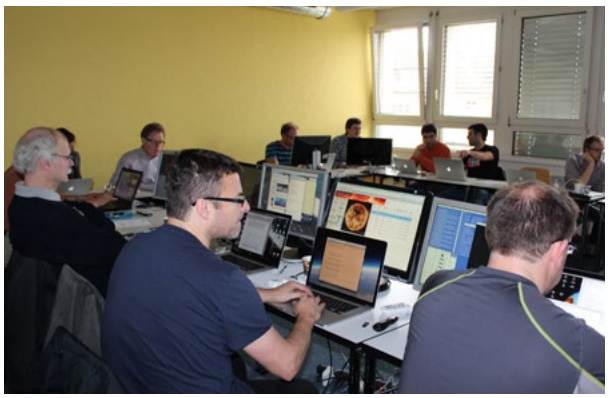


TAIKONG No. 3, June 2014
Magnetosphere Ionosphere Thermosphere Coupling
Main Author: Liu Yong (State Laboratory of Space Weather, CAS, China)

TAIKONG No. 4 August 2014
An out-of-ecliptic view of our Sun
Main Authors: Ming Xiong (NSSC, CAS, China) & Ying Liu (NSSC, CAS, China)

INTERNATIONAL SPACE SCIENCE INSTITUTE BERN

Created by Space Pioneer Professor Johannes Geiss, its first Executive Director, to offer space scientists all around the world, all disciplines concerned, a unique forum where the accomplishments of international space research would be confronted and amplified, the International Space Science Institute (ISSI) will celebrate next year its 20th birthday. The involvement of the best scientists and contributors to universal discoveries achieved through the use of space techniques, have ensured the success of this unique concept.



ISSI Team - led by Bart De Pontieu and Scott McIntosh - is working on the topic "Heating of the Magnetic Chromosphere: Confronting Models with Observations".

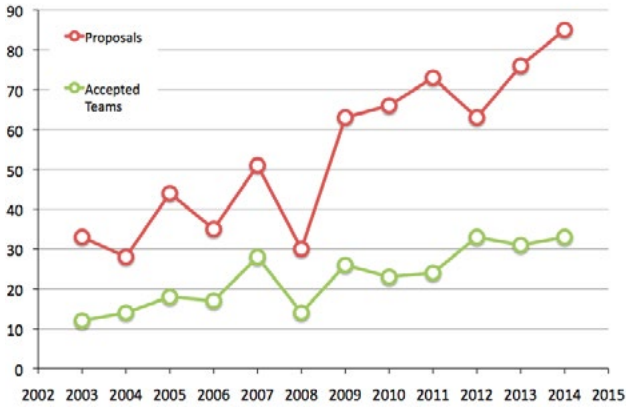
The principle of a non-profit private foundation under Swiss law was selected and implemented through a first endowment of Swiss space company, Contraves. In the small volume offered by the 700m^2 of the ISSI premises located in Bern, Switzerland, since 1995, more than 4.180 scientists coming from 50 different countries have met regularly or at different times in the framework of dedicated Workshops, topical teams, applied research Working Groups or Forums of discussions and brainstormings. Presently, more than 970 scientists per year participate in ISSI's activities. The success of this endeavour can be measured against the number of the 51 scientific and 13 technical books, reports and hundreds of articles published in the international peer reviewed literature.

This undisputable prowess can be attributed to the respect of several factors among which:

- The provision of "neutral" meeting grounds for the international science community, to address important science objectives, to identify and define new scientific and space opportunities, to address controversial issues in a strictly scientific environment and to establish priorities among the scientific challenges opened by the scientific output of space missions,
- The full respect of scientific excellence, secured through a strict pier review system under the control of a high -level international scientific committee,
- The importance of the bottom-up approach in the introduction of new ideas and research proposals,
- The truly international character of the Institute,
- The multi-disciplinarity of selected topics,
- The production of peer-reviewed topical books, aiming at discussing controversial issues and deepening scientific issues raised by the analysis of past results obtained with different space missions, ground based observations and laboratory experiments,
- The strict avoidance of interfering with the remits of space agencies in the formulation of their priorities unless specifically requested.

Placed under the authority of the ISSI Executive Director, from 2003 until 2012 Professor Roger M. Bonnet, and presently Professor Rafael Rodrigo, the Directorate of the Institute, including a maximum of four directors selected by the ISSI Board of Trustees, is responsible for ensuring the respect of these rules in view of maintaining ISSI in its unique role and safeguarding its added values with respect to other international space organizations. In addition, the seven members ISSI functional Staff ensures an optimal management of the

"EXPLORNOVA - Space Science Missions: Innovation History & Knowledge Management" is the theme of the pictured Working Group, which was set up for this specific task. The results will be published in a volume in the ISSI Scientific Report Series (SR).



Number of submitted and accepted team proposals over time.

Institute and offers the best services to the scientific community and to the Board as well as to its key supporters: the European Space Agency, the Swiss Space Office, the University of Bern and the Swiss National Science Foundation.

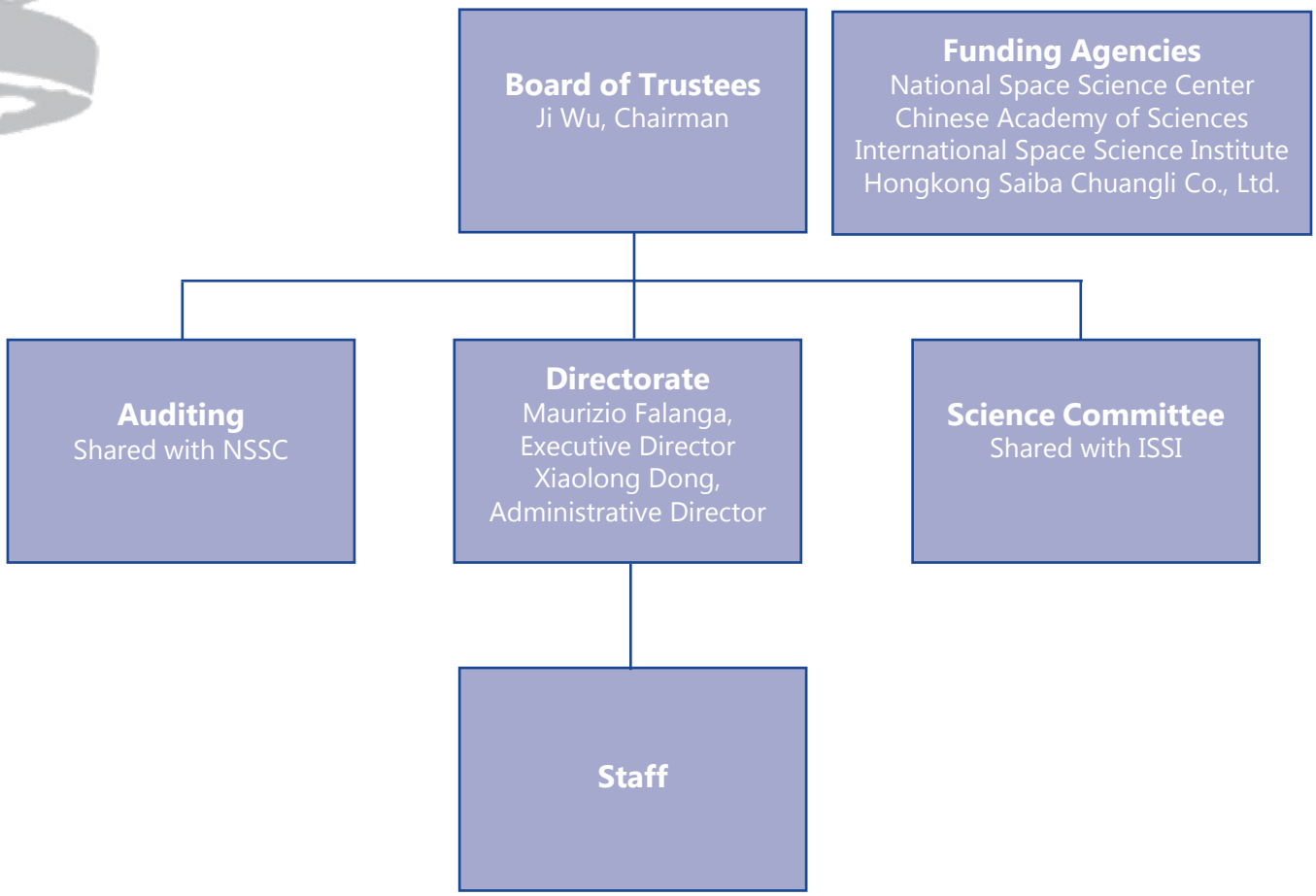
Over the past 19 years, ISSI has adopted several new orientations always adapting its remits to the demand of its users and to the progress of international space research. It has introduced space based Earth Sciences as a new component of its program, negotiated an important participation in the Europlanet initiative financed by the European Commission, continued and expanded its participation in the Alpbach Summer School, created a special program opening the participation of young scientists in all its activities and has won the Russian Academy of Science as a regular financial contributor. ISSI has also developed its core program in space science and Earth sciences.

On average ISSI was able to organise four to five workshops every year and select about 32 International Teams in these fields. That activity has helped ISSI in establishing its reputation and has proven the value of the concept for exploiting space data in a multi disciplinary and strictly scientific context. The success can be measured through the continuously increasing number of proposals received for International teams. In that context, in 2011, the ISSI Board analysed the possibility of increasing the total capacity of the Institute and came to the conclusion that ISSI's scientific excellence was better achieved through the "small and beautiful" concept and adopted the important strategic decision of maintaining ISSI premises and staff in their present size. In compensation, it also approved the possibility of ISSI's extension through the creation of "brother institutes", adopting similar and complementary objectives and running practices as those of ISSI.

Following the signature of a Memorandum of Understanding on February 14, 2012 between ISSI and the National Space Science Center, the ISSI-BJ Institute was officially inaugurated on July 16, 2013, offering an important and essential complement to the ISSI program with special emphasis on future Chinese and international scientific opportunities.

Participants of the Workshop on "The Solar Activity Cycle"held in November 2013. The SSSI Book Volume 53 with the same title will be released in spring 2015.

ISSI-BJ's ORGANIZATIONAL STRUCTURE



The **Board of Trustees** supervises the work accomplished at the Institute, exerts financial control and appoints the Directors. It consists of representatives of the Founder and of the funding agencies. The Board of Trustees is presided over by Ji Wu.

The **Science Committee** is shared with ISSI and is made up of internationally known scientists active in the field covered by ISSI-BJ and ISSI. Chaired by Tilman Spohn, the Science Committee advises and supports the Directorate in the establishment of the scientific agenda providing a proper equilibrium among the activities and reviews and grades the International Team proposals in response to the annual call. Science Committee members serve a three year term with a possible extension of one year.

The **Directorate** is in charge of the scientific, operational and administrative management of the Institute. It interacts with the Funding Agencies, the Board of Trustees and the Science Committee. The Directorate consists of Maurizio Falanga (Executive Director) and Xiaolong Dong (Administrative Director).

BOARD OF TRUSTEES & ISSI-BJ STAFF

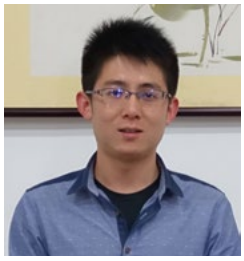
Missing Board of Trustees members in the picture:
- *Li Lan*, Secretary of the Board, NSSC, CAS, China
- *Yingjie Yu*, Deputy Director-General, Bureau of Major Research and Development Programs, CAS, China

Board of Trustees

From left to right:
- *Xiaolong Dong*, Administrative Director ISSI-BJ, China
- *Chi Wang*, Deputy Director-General NSSC, CAS, China
- *Raphael Rodrigo*, Executive Director ISSI, Switzerland
- *Ji Wu*, Director-General NSSC, CAS, China (Chairman)
- *Roger-Maurice Bonnet*, International Scientist, France
- *Maurizio Falanga*, Executive Director ISSI-BJ, China
- *Jinghua Cao*, Deputy Director-General, Bureau of International Cooperation, CAS, China

Staff

From left to right:
- *Ariane Dubost-Bonnet,* Editorial Manager (until June 2014)
- *Lijuan En,* Assistant to the Executive Director
- *Maurizio Falanga,* Executive Director
- *Xiaolong Dong,* Administrative Director



- *Sabrina Brezger*, PR & Editorial Manager (since July 2014) (left)
- *Gang Wang*, Assistant (right)

SCIENCE COMMITTEE

front row from left to right:

- *Andrei Bykov*, Russian Academy of Sciences, St. Petersburg, Russia
- *Michel Blanc* (ISSI discipline scientist)
- *Lidia van Driel-Gesztelyi*, MSSL, University College London, Dorking, United Kingdom
- *Luisa M. Lara*, Instituto de Astrofisica de Andalucia, CSIC, Granada, Spain
- *Tilman Spohn*, German Aerospace Center (DLR), Berlin, Germany (Chairman)
- *Athéna Coustenis*, Observatoire de Paris-Meudon, France
- *Lennart Bengtsson*, University of Reading, United Kingdom

back row from left to right:

- *Stéphane Udry*, Observatoire de Genève, Sauverny, Switzerland
- *Vladislav Izmodenov*, IKI, Russian Academy of Sciences, Moscow, Russia (ex officio RAS)
- *Georges Meylan*, Ecole Polytechnique Fédérale de Lausanne, Switzerland
- *Hugh Hudson*, Space Sciences Laboratory, University of California, USA
- *Mark McCaughrean*, ESTEC ESA, Noordwijk, The Netherlands (ex officio ESA)
- *Richard Marsden*, ESTEC ESA, Noordwijk, The Netherlands (ex officio ESA)
- *Masahiro Hoshino*, Department of Earth and Planetary Science, University of Tokyo, Japan*
- *Michael Rast*, ESA ESRIN, Frascati, Italy (ex officio ESA)
- *Luigi Stella*, INAF, Rome, Italy
- *Xiaolong Dong*, International Space Science Institute Beijing, Beijing, China (ex officio)

missing in the picture:

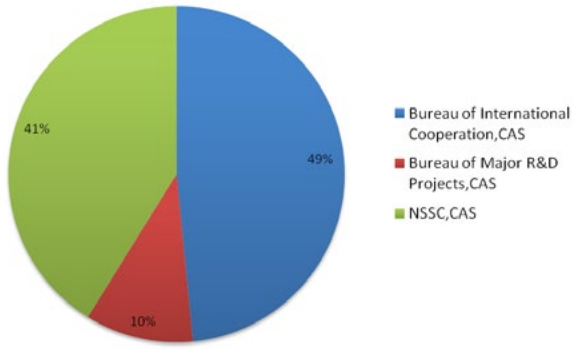
- *Rumi Nakamura*, Space Research Institute, Graz, Austria
- *Joanna D. Haigh*, Imperial College London, United Kingdom
- *Marco Velli*, NASA Jet Propulsion Laboratory, Pasadena, USA

* Membership ended on 30 June 2014

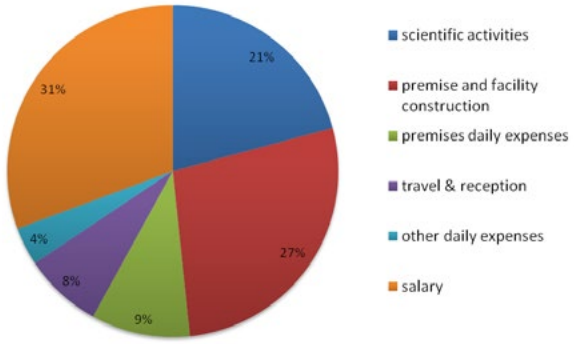
FINANCIAL OVERVIEW

The first two fiscal years, from January 1, 2013 to December 31, 2014, ISSI-BJ was operated with a total revenue of 3,100,420.24 RMB and the total expenses were 2,626288.17 RMB. The surplus of 474,132.07 is from the outside sponsor and assigned as the planned budget for cross-year activities, such as the International Teams.

For 2013, the total funding was 1,176,470.64 RMB and the total expenses were 1,165,289.08 RMB. The funding includes the direct financial support from the Bureau of International Cooperation of Chinese Academy of Sciences (CAS), project support from the Bureau of Major Research and Development Programs of CAS for activities and direct support from the National Space Science Center of CAS for expenses on premises, facilities and staff salaries. The surplus for the 2013 is 11,181.56 RMB.



2013 Fiscal Year Revenues



2013 Fiscal Year Expenses

Total Revenues in RMB for the first Fiscal Year (January 1, 2013 - December 31, 2013)

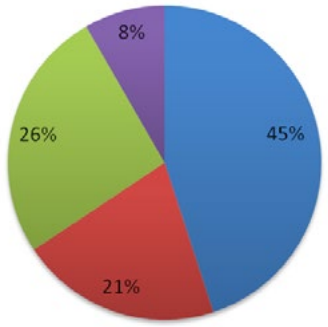
Bureau of International Cooperation, CAS	570,000.00
Bureau of Major R&D Projects, CAS	122,306.50
NSSC funding for activities and staff	371,905.28
NSSC support for premises and facilities	112,258.86
Other supporting services from NSSC	

Operating Expenses in RMB for the first Fiscal Year (January 1, 2013 - December 31, 2013)

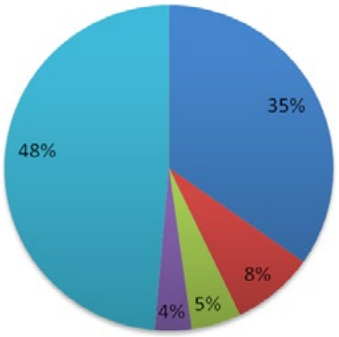
Scientific activities[1]	242,531.80	
Premise and facility construction[2]	320,916.00	
Premises daily expenses[3]	112,258.86	
Travel and reception[4]	89,233.76	
Other daily expenses[5]	43,271.58	
Salaries and related costs[6]	357,007.08	
Total	**1,165,289.08**	**1,176,470.64**

Remarks:
[1]**Scientific** activities include 4 Forums;
[2]**Premise and facility construction** includes office reconstruction and renovation and the facilities;
[3]**Premise daily expenses** include daily expenses of the office and apartment for staff;
[4]**Travel and reception** includes travel and reception expenses for candidate executive directors & invited guests for inauguration;
[5]**Other daily expenses** include facility maintenance, supplies, administration, publications, communication & other daily expenses;
[6]**Salary** for the administrative director is not included

For 2014, the total funding was 1,923,949.60 RMB and the total expenses were 1,460,999.09 RMB. The funding includes the direct financial support for the activities of ISSI-BJ and support for the executive director of ISSI-BJ from the Bureau of International Cooperation of CAS, project support from the Bureau of Major Research and Development Programs of CAS for activities and direct support from NSSC of CAS for expenses on premises, facilities and staff salaries. By the end of 2014, the financial balance of ISSI-BJ is 474,132.07 RMB, which is from the outside sponsor and assigned for the planned cross-year activities in 2015.



2014 Fiscal Year Revenues



2014 Fiscal Year Expenses

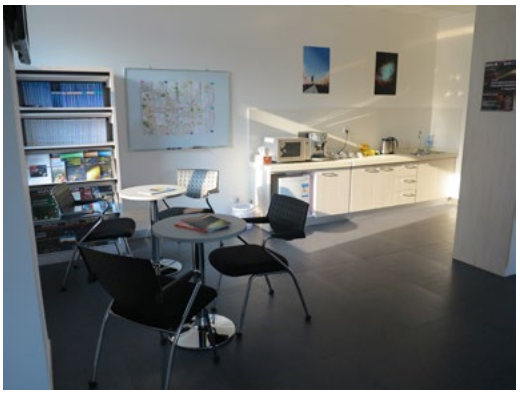
Total Revenues in RMB for the second Fiscal Year (January 1, 2014 - December 31, 2014)

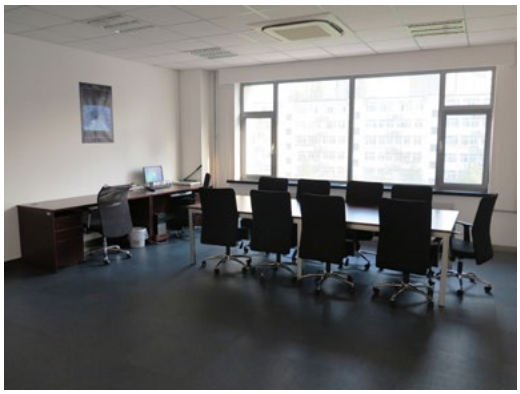
Bureau of International Cooperation, CAS (for ISSI-BJ)	350,000.00
Bureau of International Cooperation, CAS (for Executive Director)	515,000.00
Bureau of Major R&D Projects, CAS	398,523.95
Hongkong Saiba Chuangli Co., Ltd.	500,000.00
NSSC support for premises and staff salaries	160,425.65
Other supporting services from NSSC	

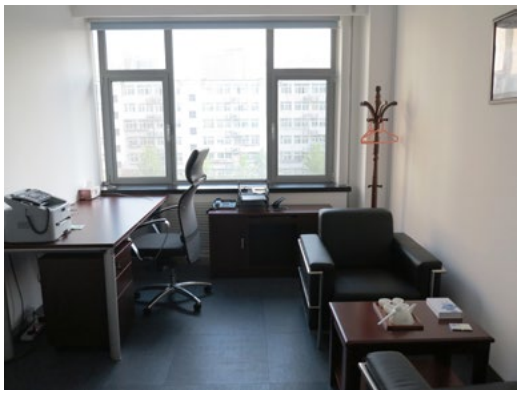
Operating Expenses in RMB for the second Fiscal Year (January 1, 2014 - December 31, 2014)

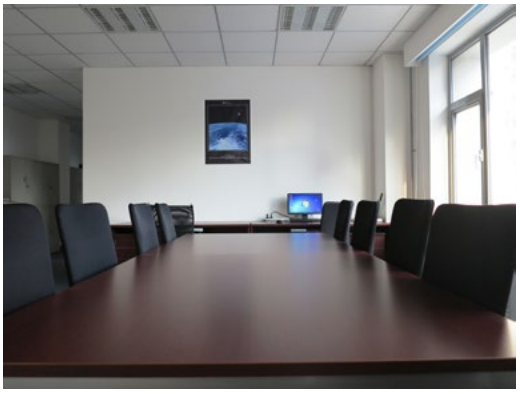
Scientific activities	507,967.92	
Premises daily expenses	118,804.47	
Travel and reception	71,432.00	
Other daily expenses	52,775.90	
Salaries and related costs	710,018.80	
Total	**1,460,999.09**	**1,923,949.60**

FACILITIES









The 90 m^2 big ISSI-BJ office space consists of one smaller meeting room (suitable for up to 12 participants) equipped with a projector, a working station with a computer, as well as a coffee and reading area providing all ISSI-BJ and ISSI publications. The two attached office rooms offer space for the ISSI-BJ staff members and are equipped with printers, laptops and computers. Furthermore, ISSI-BJ shares its conference facilities with the National Space Science Center of the Chinese Academy of Sciences. The facilities are composed of six seminar rooms (20-30 participants each), two lecture halls (up to 100 participants each) and one multimedia conference hall (30 participants). All rooms are equipped with overhead projectors for large screen presentations and high speed wireless network connection.

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