Research Fund for International Young Scientist in 2012

Serial number	Project Title	Home instituion	Applicant
1	Study of Persistent Current in High Temperature Superconducting Coils	Southwest Jiaotong University	晏飞翔
2	High-pressure study of inorganic scintillators	Jilin University	V. Kanchana
3	Galaxy Formation	Peking University	Marcel Zemp
4	Type Ia Supernovae spectral analysis using the Nearby Supernova Factory data sample	National Astronomical Observatories of CAS	Nicolas C. P. Chotard
5	Emission spectroscopy in Fast Ionization Wave Discharge	Tsinghua University	Keisuke Takashima
6	Binary evolution: explaining transients, improving techniques and developing applications	National Astronomical Observatories of CAS	Stephen Justham
7	Multi-scale Modeling and Simulations of Quantum Plasmon Enhanced Intermediate Band Solar Cells	University of Science and Technology of China	Jin-Ho Choi
8	The formation of stars and planets	Peking University	Gregory Joseph Hercz
9	Nature of the low-lying scalar mesons and its implication for QCD phase transition	Institute of High Energy Physics of CAS	Tamal Kumar Mukherje
10	Development of Non-Equilibirum Ionization Spectral Emission Code for X-ray Astronomy	Purple Mountain Observatory of CAS	Adam Robert Foster
11	Next Generation Graphene Supercapacitors: Flexible and Printable	Central South University	Craig E Banks
12	Catalytic Conversion of Biomass-derived Carbohydrates to High-quality Liquid Bio-fuels in Bifunctional Catalytic System	Guangzhou Institute of Energy Conversion of CAS	Uzma I. Zakai
13	Investigation of self-assembled organic structures with atomic force microscopy	Central South University	Kislon Voitchovsky
14	Seasonal variation and Oxidative activity of PM2.5 components	Peking University	Anindita Dutta
15	Development of Sensitivity-Enhanced NMR	Wuhan Institute of Physics and Mathematics CAS,	Bajaj
16	Community structures and ecological functions of microbes in typical deep-sea environments	Institute of Microbiology of CAS	Dastager Gulam Syed
17	The influence of indigenous N-fixing trees on soil nutrition, soil communities and crop productivity	Kunming Institute of Botany of CAS	Peter Edward Mortimer
18	Role of GPCRs in Alzheimer's disease: underlying mechanisms and discovering new therapeutics targets.	Shanghai Institutes for Biological Sciences of CAS	Hebe Josefina Marcuc
19	Alkaline Phosphatase Fusion Probe	Hangzhou Normal University	Mikhail Koksharov
20	Integrative large-scale analysis of human brain metabolism	Shanghai Institutes for Biological Sciences of CAS	Kasia Bozek
21	MD simulations on GPCRs for improvement of GPCR protein crystallization	Shanghai Institutes for Biological Sciences of CAS	Steffen Wolf

Serial number	Project Title	Home instituion	Applicant
22	Age-specific regulation of alternative splicing by small non-coding RNAs in human brain	Shanghai Institutes for Biological Sciences of CAS	Khrameeva Ekaterina
23	Proof of principle for using metabolic fingerprinting to diagnose dietary macronutrient intake	Institute of Genetics and Developmental Biology CAS	Valencak Teresa Giov
24	Influence of the stratospheric sudden warming on the tropical convection and gravity wave activity	Institute of Atmospheric Physics of CAS	Debashis Nath
25	Experiment and simulation on long-term mechanical behavior and durability of high-grade recycled concrete	Tongji University	Tam Wing Yan Vivian
26	Risk of Vehicle Rollover and Slippage Based on Simulation of Vehicle Dynamics	Southeast University	Mostafa Kamali Ardak
27	New Concepts for Simultaneous Solar Water Purification and Renewable Electricity Generation	Tianjin University	Marta Vivar Garcia
28	Research on Asphalt Mixture Testing and Computer Simulation	Changan University	Sanjeev Adhikari
29	Iron Oxide-Gold multimodality theranostics against hepatic fibrosis	Peking University	Muhammad Zubair Yous
30	Deformation mechanisms and theoretical study of Zirconium alloy at high temperature	Chongqing University	Adrien CHAPUIS
31	Novel Methods for Controlling Microstructure in 3D Laser Rapid Prototyping of Superalloys	Northeast University	Daniel Wellburn
32	X-ray tube based on field-emission cathode	Southeast University	Anand Kumar Dokania
33	Structural interpretation of unconstrained online handwritten notes	Institute of Automation of CAS	Adrien Delaye
34	The Triangular Emission Trade among China, Africa and OECD Countries	Institute of Applied Ecology of CAS	Dabo Guan
35	The effect of nanoencapsulation on topical delivery of adapalene	Tianjin University	Rajeshree Khengar
36	To investigate the roles of Toll/interleukin-1 receptor (TIR) signaling pathway and their interactions with NLRs/TLRs in host innate immune responses during bacterial pathogenesis and parasitic infection of human importance	Institute of Microbiology of CAS	Mohammad Sohail
37	Meiotic recombination function of Trip13 in breast cancer	Central South University	Ji-Hak Jeong
38	Novel synthetic opioids as potential therapeutics for the treatment of gastrointestinal disorders and inflammatory conditions	Tongji University	Jakub Fichna
39	Investigation of brain structure and function in major depressive disorder (MDD) using multimodal imaging analyses	Institute of Automation of CAS	Martin Walter
40	Synthesis and antimicrobial activity of coumarin imidazoles as a new type of antibacterial and antifungal agents	Southeast University	Lakishmi Vasantha Damu Gu
41	Elucidation of the design principles of metabolic pathways of living organisms via mathematical modelling analysis	Tianjin Institute of Industrial Biotechnology CAS	Kazuhiro Takemoto
42	The fate of the first galaxies in the cold dark matter model	National Astronomical Observatories of CAS	Andrew Paul Cooper
43	Simulations of low redshift HI distribution	National Astronomical Observatories of CAS	Jaswant Kumar

Serial number	Project Title	Home instituion	Applicant
44	Periodic negative-regular continued fractions and their applications to abstract algebra, number theory, and orthogonal polynomials	Shanghai Jiaotong University	Mikhail Tyaglov
45	Thermodynamics of materials studied via the combination of ab initio technique and genetic algorithm	Institute of Semiconductors of CAS	Arkadiy Mikhaylushkin
46	Molecular Insight into Gas-Solid Interfaces Relevant to Environmental Catalysis	Dalian University of Technology	Nobutaka Maeda
47	Equilibrium Solubility and Mass Transfer Performance of CO2 Absorption into the Novel Ionic Liquid (IL) [DEAB][HX]	Hunan University	Teerawat Sema
48	Development and Application of Integrated Electrochemical Advanced Oxidation Technologies to Enhance the Remediation of Waters Contaminated with Organic Pollutants	Nankai University	Ignacio Sirés Sadornil
49	Development of functional dyes for the automated characterization of animal behavior	Central South University	Benjamin de Bivort
50	Cavitand Capped Chiral Capsules	Central South University	José Lorenzo Alonso
51	Rheological investigation for the phase behavior of block copolymer and its mixture with homopolymer	Changchun Institute of Applied Chemistry of CAS	Snijkers Frank
52	Climate-driven Vegetation Dynamics Across Altitudinal Gradients in the Qinghai-Tibetan Plateau, China	Chengdu Institute of Biology CAS	Lucas Silva
53	Study on the Structure-function Relationship of a Pain Related Molecular—P2X Receptor	Guangzhou Institutes of Biomedicine and Health	Samways Damien
54	Impact of climate change on the potential for cultivation and conservation of priority Indigenous Fruit Tree species in West Africa—An analysis using five GCMs	Institute of Geographic Sciences and Natural Resources Research CAS	Belarmain Fandohan
55	Testing adaptations of native plant populations to competition from an invasive alien plant species under warmer climate	Institute of Geographic Sciences and Natural Resources Research CAS	Ayub Oduor
56	Investigation of crucial tRNALeu bases in aminoacylation and editing reactions	Shanghai Institutes for Biological Sciences of CAS	ANELLA FABRIZIO MARI
57	Computational Identification of MicroRNA Response Elements and Three-Dimensional Modeling of Chromatin Fibers	Shanghai Institutes for Biological Sciences of CAS	Hammad Naveed
58	Introducing the zebrafish as a model for developmental responses to nutrient restriction	Shanghai Institutes for Biological Sciences of CAS	Sam Linsen
59	Activity of soil ecosystem engineers and soil structure under different agro-ecological practices: consequences on red soil erosion in southern China	Institute of Soil Science CAS	Nicolas
60	Microbiologically induced carbonate precipitation based remediation of heavy metal contaminated sites	Xinjiang Institute of Ecology and Geography CAS	varenyam Achal
61	Multiple isotope investigation to reveal complex pollution mechanisms in surface and subsurface environments of Beijing, China	Institute of Geographic Sciences and Natural Resources Research CAS	Marc Peters
62	The Research Fellowship for International Young Scientists	Yantai Institute of Coastal Zone Research of CAS	Benoit Lebreton
63	Research on the Microbial-mediated Redox of Manganese in Marine Sediment	Institute of Oceanology CAS	DAS ANINDITA

Serial number	Project Title	Home instituion	Applicant
64	Characterization of the size effect in rock strength to increase economy and safety in rock slope design	Northeast University	Daniel Ricardo Viete
65	Assistance system for the determination of measurement uncertainty	Tianjin University	Teresa Werner
66	Frontier Science in Energy Optimization and Greenhouse Gas Minimization in Ironmaking	Central South University	Il Sohn
67	SrTiO3 photocatalyst nanoparticles: self-propagating high-temperature synthesis and doping effect	Northeast University	Takeshi Toshima
68	Towards a better understanding of the disjoining pressure in thin films	Peking University	Adriana Sechi
69	Fabrication, characterization and applications of graphene /carbon nanotube hybrid hierarchical structures.	Tsinghua University	Khurram Shehzad
70	Scientific Research on the famous crackled glazed porcelains of the Song Dynasty	Shanghai Institute of Ceramics CAS	Sophia Lahlil
71	Reliability Analysis of Nonlinear Structures via Probability Density Evolution	Tongji University	Mahdi Teimouri Sicha
72	Synthesis and Characterization of Nanosized Functional Materials and Study Their Potential Influence to Environment	Dalian Institute of Chemical Physics CAS	SHUBHRA GOEL
73	Low noise carbon nanotubes for peltier and photo-detector device applications	Wuhan University	Yu Woojong
74	Research on WSN Infrastructure for Human-in-the-Loop CPS Software	Wuhan University	Kaushik Chowdhury
75	Improving Precision for Body Area Network Channel Characterization for Single and Multiple Antennas	Xidian University	QammerHussain-Abbasi
76	Secure Multiparty Computation: Efficiency and Applications	University of Electronic Science and Technology of China	Claudio Orlandi
77	High frequency permeability and permittivity of magnetic thin film with unusual phase transitions	University of Electronic Science and Technology of China	Magundappa LHadimani
78	View Synthesis from First Person Omnidirectional Video	China University of Petroleum	William Smith
79	Intercultural Perspectives on Health Communication-The Case of Discourse on Diabetes	Tsinghua University	Comelia Bogen
80	Analysis of energy and climate policy issues at national and regional scales in China	Tsinghua University	Cyril CASSISA
81	International Study on Public Sector Motivation	Central South University	Dermot McCarthy
82	Cognitive functions linked to consciousness in severely brain injured patients: a electrophysiological and functional neuroimaging approach	Hangzhou Normal University	Caroline Schnakers
83	Predicting and mapping physical fitness levels due to soil-transmitted helminth infections in children in China	Fudan University	Peter Steinmann
84	RNASEH2A Promotes Breast Tumorigenesis	Central South University	Sun Jin Park
85	Developing a Robust Preclinical Model to Evaluate Candidate Myeloma Genes	Tongji University	Van Tompkins
86	Development of a human scaffold protein for use as an alternative to antibodies and as a novel therapeutic	Guangzhou Institutes of Biomedicine and Health	Darren Tomlinson
87	Design and synthesis of quinoline 1,2,4-triazoles as a novel type of analogues of clinical quinolones and their antimicrobial evaluation	Southwest University	Bhupendra Reddy Chinnappareddy

Foreword

In the first year of the "the 12th Five-Year Plan", the National Natural Science Foundation of China (hereinafter abbreviated as NSFC) fully implemented the National Program for Medium- and Long-Term Scientific and Technological Development (2006—2020) and the 12th Five-Year Plan for the Development of the National Natural Science Fund of China (the 12th Five-Year Plan), its strategy of supporting basic research, encouraging free exploration and playing a guiding role, and its working guideline of respecting science, enhancing democracy, expediting competition, encouraging cooperation, nurturing innovation and leading the future, always insisted on its evaluation principle of relying on experts, promoting democracy, funding excellent research, and advocating fairness and rationality to nurture creative ideas and foster talents, and has made positive contributions for the maturity of the national innovation system and the construction of the innovation-oriented country.

NSFC has formulated 3 categories of programs with respective preferential focuses, i. e. Research Program, Talent-Training Program, and Research Environment Program, which constitute an integrated funding system of the National Natural Science Fund. Research Program is aimed at achieving innovative results in basic research, fostering a balanced and coordinated development of disciplines with special emphasis on certain key areas, facilitating interdisciplinary research, and stimulating original innovation, with a view to improving the level of basic research. Through funding young researchers conducting independent research and assisting researchers in regions of weak basic research, Talent-Training Program is targeted at nurturing top talents and innovative research teams, fostering a talent pool for basic research and ultimately enhancing China's S&T competitiveness in the future. Research Environment Program is mainly intended to improve research facilities, to boost resource sharing, to optimize favorable environments for basic research, and to promote the public understanding of basic research.

In 2012, based on the overall layout of the 12th Five-Year Plan, NSFC will adhere to its strategic orientation of "more emphasis on basic research, frontier research and talent training" and make greater efforts to optimize the funding policy and improve the funding structure. Through the implementation of the strategies for original innovation, fostering of innovative talents, open and cooperation, construction of an environment favorable for innovation, and management excellence, NSFC will strive to develop a more dynamic, more efficient and more open science funding system with Chinese characteristics, thereby facilitating a balanced, coordinated and sustainable development of scientific disciplines, brings China into the world's best in some mainstream scientific disciplines, nurturing high-caliber scientists and innovation teams with international reputation, enhancing excellence of basic research, amplifying the international visibility of basic research, and strengthening the capacity for indigenous innovation in a number of key areas for laying a sound S&T foundation for achieving a sustainable social and economic development and accelerating China into an innovation-oriented country.

In order to give expression to the principle of openness, fairness and justness and help scientists better understand NSFC's funding policies, the *Guide to Programs of the National Natural Science Fund*: 2012 (hereinafter abbreviated as the *Guide to Programs*) is published to all applicants for the selection of the proper categories of programs, research areas and orientations of investigation in applying for the National Natural Science Fund with research topics proposed on their own initiative.

Most of the applications for the National Natural Science Fund are accepted during the batch application period every year. By an increase of 28.24%, a total of 147,743 research proposals were received during the batch application period in 2011, of which 147,703 research proposals were accepted, which meant an increase of 32,534 applications over that in 2010. The 40 proposals declined were due to various reasons such as applications submitted by non-registered institutions, late submission or without electronic form or printed copies of applications. The number of applications for the Young Scientists Fund continued to in-

crease sharply by 49.09% in comparison with that in 2010. The number of applications for the General Program was also increased by 16.77% from that in 2010. The number of applications for the Fund for Less Developed Regions continued to grow by 37.20%. A little more applications for the National Science Fund for Distinguished Young Scholars and Key Programs were received in 2011. Applications for Special Fund for Basic Research on Scientific Instruments, the Major International (Regional) Joint Research Program and the Joint Fund Program had large increase.

After preliminary evaluation, NSFC notified in public that 3,913 applications were refused, accounting for 2.6% of the total applications received. A total of 483 appeals for re-evaluation were received before the deadline for appeal, and 433 of them were accepted and the other 40 appeals were rejected for lack of required documents and other reasons. After serious checking and verification, the previous decisions of rejection, both well-founded and justified in nature, were maintained for 413 appeals, and the other 30 appeals were approved in that the previous decisions of rejection were wrongly made, accounting for 6.77% of all the appeals accepted. Therefore, a total of 143,820 applications for the National Natural Science Fund were accepted during the batch application period in 2011.

By the time this *Guide to Program* is published, after compulsory review procedures, 15,329 projects in General Program, 497 projects in Key Program, 145 projects in Major Research Plan Program, 92 projects in International (Regional) Joint Research Program, 198 projects in National Science Fund for Distinguished Young Scholars, 13,146 projects in Young Scientists Fund, 2,033 projects in Fund for Less Developed Regions, 30 projects in Science Fund for Creative Research Groups, 100 projects in Joint Research Fund for Overseas Chinese Scholars and Scholars in Hong Kong and Macao, 97 projects in National Science Fund for Talent Training in Basic Research, 40 projects in Research Fund for International Young Scientists, 55 projects in Special Fund for Basic Research on Scientific Instruments, 288 projects for Joint Funds, 19 projects in Fund for Promoting Public Understanding of S&T, 30 projects in Special Fund for Teenage Participation in S&T Activities, and 15 projects in Special Fund for Excellent State Key Laboratories were funded. Besides, there are a number of applications yet to be approved. For more information about the statistics and analysis of the applications and final approvals, please refer to the respective relevant sections of this *Guide to Programs*.

This *Guide to Program*s introduces various types of programs, of which applications will be accepted during the batch application period in 2012. Notes on application and regulations on the limits on the total number of applications for one applicant are introduced in detail. The overall funding facts and priority areas of the General Program, Key Program, the Young Scientists Fund, and the Fund for Less Developed Regions are introduced in the section of each scientific department. For the General Program, the overall funding principles and specified requirements as well as notes on applications are provided in addition to the introduction of the overall funding statistics of each scientific department. Apart from that, the trend of development, funding scopes and requirements in diverse disciplines are described by respective divisions of the scientific departments. Other types of programs are introduced in general terms. Special requirements for each of them are introduced seriatim in the main text of this *Guide to Programs*.

Applications for programs which are not listed in the *Guide to Programs* will not be accepted during the batch application period, and the call for proposal to these programs and related guiding information will be announced at the NSFC's website (http://www.nsfc.gov.cn) or by other media. Applicants are advised to pay due attention to the updating of related information.

In the consecutive procedures of application acceptance, evaluation and program management, NSFC will, in light of the Regulations on the National Natural Science Fund and relevant Guidelines for Program Management, strive to standardize management procedures, optimize the peer review mechanism, encourage indigenous innovation, emphasize on research merits, nurture a favorable environment for research, support disciplinary intercrossing and tolerance of different academic ideas, strictly observe pertinent regulations on conflict of interest and confidentiality, and sincerely cherish the supervision from the scientific community and the general public. All scientists are welcome to submit high-quality applications for the National Natural Science Fund.

Editorial Board of the *Guide to Programs of the National Natural Science Fund*: *2012*

November 22nd, 2011

Joint Research Fund for Overseas Chinese Scholars and Scholars in Hong Kong and Macao

In order to take advantage of the overseas (including Hong Kong and Macao) resources of science and technology and encourage overseas excellent young scholars to serve the country, NSFC sets up the Joint Research Fund for Overseas Chinese Scholars and Scholars in Hong Kong and Macao to support overseas (including Hong Kong and Macao) excellent scholars under the age of 50 to conduct high-level joint research with researchers in mainland China.

Two-year funding projects

Eligibility of Applicants

Scholars, who would like to apply for the Joint Research Fund for Overseas Chinese Scholars and Scholars in Hong Kong and Macao, should meet all the following requirements:

1. Have good scientific integrity.
2. Be under the age of 50 by January 1 of the year of application (born on or after January 1 of 1962).
3. Hold professional title of associate professor (or above) in that country (or region).
4. Be engaged in scientific research abroad, in Hong Kong or in Macao, and in charge of a laboratory or an important research project.
5. Work in the home institution for more than two months every year.
6. Have made outstanding academic achievements recognized by international peers, and the proposed work should be in the area of international frontier sciences and already have collaboration with their collaborators in Mainland China.
7. Sign collaborative agreement with the home institution of the collaborator, which includes the following contents:

(1) The title, research direction and proposed goals of the joint research project;

(2) The home institution promises to provide main experimental facilities, human resources and other materials necessary for the joint research;

(3) The applicant promises to work in the home institution for more than 2 months every year.

Notification

(1) The Joint Research Fund for Overseas Chinese Scholars and Scholars in Hong Kong and Macao mainly evaluates the academic ability of the applicants and the basis for cooperation with their collaborators.

(2) Applicants should first find collaborator and sign the collaborative agreement with the home institution in Mainland China before applying for the Fund.

(3) Information about the collaborators should be provided in the first line of the "main participants" in the application form.

(4) Names of the applicants' institutions and the applicants' professional position (titles) should be provided in English.

(5) One applicant and his/her collaborator could apply for one project only in the corresponding period. In addition, they should have no on-going project of this category from NSFC.

(6) Applicant should provide valid proof documents for his/her professional position and research work.

Application and Submission

Please prepare applications by providing accurate information in accordance with the o*utlines for the Joint Research Fund for Overseas Chinese Scholars and Scholars in Hong Kong and Macao*, and submit with relevant supplementary documents.

After carefully checking the application and verifying the applicant's qualification, the home institution should submit the application to NSFC according to relevant requirements.

In 2011, The Joint Research Fund for Overseas Chinese Scholars and Scholars in Hong Kong and Macao received 411 applications, and funded 80, with funding of 16 million yuan. In 2012, this Fund plans to award 120 projects. Each project will be awarded for a period of 2 years, with a funding of 200,00 yuan.

Extended funding projects

The Joint Research Fund for Overseas Chinese Scholars and Scholars in Hong Kong and Macao adopts the "2+4" model. At the end of two years, the PI may apply for extended funding. After evaluation, another 4-year funding may be given to those who have been substantial cooperation and clear potential for further research.

Eligibility

1. Grantees of the Joint Research Fund for Overseas Chinese Scholars and Scholars in Hong Kong and Macao project of 2009 and completed on time, grantees of 2008 and completed on time but did not apply for extended funding in 2011 or applied but not awarded the extension.

2. Applicants should spend enough time in the home institution during the project implementation.

3. Substantial progress and solid foundation for future cooperation should be made by the two-year project.

4. Proposed extended cooperation should be in the area of international frontier science with important scientific significance, and facilitate the disciplinary development and talent fostering.

5. Applicant has signed extended agreement of cooperation with home institution. The agreement should include the following contents:

(1) The title, research direction and proposed goals of the joint research project.

(2) The home institution promises to provide main experimental facilities, human resources and other materials necessary for the joint research.

(3) The applicant promises to work in the home institution for more than 2 months every year.

Notification

1. Applicant or collaborator could apply for one project only (the Two-year Funding or Four-year Extended Funding Project) and could not hold any on-going project of this category from NSFC.

2. The collaborator's information should be provided in the first line of the main participants in the application form.

Application and Submission

Please prepare applications by providing accurate information in accordance with the *Outlines for the Joint Research Fund for Overseas Chinese Scholars and Scholars in Hong Kong and Macao*, and submit with relevant supplementary documents.

After carefully checking the application and verifying the applicant's qualification, the home institution should submit the application to NSFC according to relevant requirements.

In 2011, The Joint Research Fund for Overseas Chinese Scholars and Scholars in Hong Kong and Macao received 46 applications for extension, and funded 20, with funding of 24 million yuan. In 2012, this Fund plans to award 30 extensions. Each extension will be awarded for 4 years, with a funding of 2 million yuan.

International (Regional) Cooperation and Exchange

The strategy for open and cooperation has been formulated during the 12th NSFC Five-Year period, including to encourage researchers to conduct extensive and intensive international (regional) cooperation and exchange with top scientists and research institutions around the world, to promote substantial joint research activities for more researches focusing on frontier areas in the world, to stimulate Chinese scientists to participate and initiate bilateral/multilateral scientific collaborations for making full use of international research resources, and to enhance the capability of China's science community in coordinating regional and global scientific cooperation, so as to impel strategic cooperation and strengthen the influence of China's basic research globally.

In line with its 12th Five-Year Plan and the key tasks, NSFC will take the Exchange Program as the basis of its international funding framework, substantial Joint Research Program as the priority, attracting and utilizing overseas resources to boost indigenous innovative capability as the target, and steadily pushing ahead strategic cooperation as the ultimate goal in the year 2012.

The year 2012 will witness a continued increase in funding for NSFC Major International (Regional) Joint Research Program. Efforts will be made to enhance the quality and better the management and implementation of projects funded. Scientists are encouraged to take full advantages of global S&T resources. Continued efforts will be made to strengthen the strategic cooperation under the Agreement/MOU framework signed between NSFC and its foreign partners by developing and implementing substantial and high-caliber joint research programs. An emphasis will still be put on the funding for personnel exchange programs and international workshops held in China, with a view to building up an international/regional joint research network between China based scientists and their international partners. The funding mechanism for the Research Fund for International Young Scientists will be further perfected.

Applications for the Major International (Regional) Joint Research Program and other special programs should be submitted during the concentrated application window, and applications for other international cooperation and exchange programs, including conferences held in China, should avoid this period for submission.

Funding for International (Regional) Cooperation and Exchange Programs in 2011

Unit: in 10 thousand yuan

Program Categories		No. of Projects Funded	Total Funds
Joint Research Programs	Joint Research Programs funded under Bilateral/Multilateral Agreement/MOU Framework	142	14,113
	Major International (Regional) Joint Research Program	92	25,500
	Research Fund for International Young Scientists	111	2,100
	Subtotal	345	41,713
Cooperation and Exchange Programs	Cooperation and Exchange Programs funded under Bilateral/Multilateral Agreement/MOU Framework	336	2,000.12
	Cooperation and Exchange Programs not funded under Bilateral/Multilateral Agreement/MOU Framework	486	2,201.53
	Subtotal	822	4,202.65
Total(including international organization membership fees and funds used for the Sino-German Center for Research Promotion		1,169	47,814.03

Funding Programs

According to the actual needs of scientists and researchers in China, 4 categories of international (regional) cooperation and exchange programs have been established, i. e. , International/Regional Joint Research Program, International/Regional Cooperation and Exchange Program, International (Regional) Academic Conferences, and Research Fund for International Young Scientists.

NSFC has by far concluded 75 cooperation agreements/MOUs with science funding agencies and research institutions in 37 countries/regions. China based applicants can either submit applications for international (regional) cooperation and exchange programs to NSFC by themselves, or submit applications to NSFC together with foreign collaborators submitting corresponding applications to their science funding agencies that have signed cooperation agreements/MOUs with NSFC. The former will be funded by NSFC solely and is called "Program out of Bilateral Agreements/MOUs"; while the latter will be funded jointly by NSFC and its foreign partners and is thus called "Program within Bilateral Agreements/MOUs".

For Programs within Bilateral Agreements/MOUs, NSFC is necessary to reach agreement with its foreign partners with respect to program category, priority areas, funding scale, and use of funds, etc. , and then joint call for proposals is announced at the same time on their respective websites.

International (Regional) Joint Research Program

In order to further cut the edge of China's scientific research and its international competitiveness and to achieve breakthroughs in the frontier research areas, the International (Regional) Joint Research Program aims at funding Chinese scientists to conduct substantial cooperation with their international collaborators on the basis of "equal cooperation, mutual benefits, and equal sharing of research results". Major International (Regional) Joint Research Program and Joint Research Program jointly funded under the framework of agreements between NSFC and its foreign partners comprise the International (Regional) Joint Research Program.

Major International (Regional) Joint Research Program

The Program gives priority to research in the following areas: joint research in the priority funding areas of NSFC, joint research in areas that China urgently needs to develop, international mega projects and programs with Chinese participation, and joint research projects utilizing large-scale scientific facilities abroad.

Researchers applying for this program shall, in accordance with the priority funding areas announced by relevant scientific departments, choose innovative joint research subjects centering on major scientific issues, and clarify the necessity and complementarities of the cooperation. The partners shall have long-term steady collaboration and the overseas partners shall have matching funds for this research. In the process of cooperation, attention shall be given to the protection of intellectual property rights.

In 2011, 92 projects under the Major International (Regional) Joint Research Program were funded with a total funding of 255 million yuan, i. e. , an average funding of 2. 77 million RMB per project, which means an increase in number of projects funded by 46% and an increase in funding scale by 38% respectively over the year 2010. In 2012, the average funding will be increased to 3 million RMB per project and each project usually lasts for 5 years.

Eligibility of Applicants:

In order to be eligible for this program, applicants should be granted with the title of professor or associate professor and be principal investigators of on-going or completed NSFC research project with duration of no less than 3 years.

Budgetary Contents:

Budget includes both research funds and funds for international cooperation and exchanges, with the funds for international cooperation and exchanges accounting for no more than 40% of the total budget.

Application Window and Channel:

Proposals for the Major International (Regional) Joint Research Program should be submitted during the concentrated application window and the scientific departments of NSFC who are responsible for receiving applications.

Priority Areas for Funding:

Department of Mathematical & Physical Sciences

Applications featuring win-win cooperation, distinct characteristics, and clear research goals, and joint research projects based on experiment facilities in China, oriented to international key experiments, or based on international large scale experiment facilities are especially encouraged by the Department of Mathematical & Physical Sciences.

(1) Smart materials and structural mechanics
(2) Non-linear mechanics of complex systems
(3) Sky surveys and space observations
(4) New astronomical technological methods associated with the large telescopes
(5) Super fast and super strong light physics and precision measurement physics
(6) Spectrum of advanced materials and high-performance computing of physical processes
(7) Low-dimensional systems of quantum transport experiments
(8) Study of high performance particle detector
(9) Hadron structure and new cutting-edge research of hadron states
(10) Magnetically confined fusion beam injection and related physical issues
(11) Physical issues in new energy

Department of Chemical Sciences

(1) Process and mechanism of surface and interface chemistry
(2) Analytical chemistry for life sciences
(3) Molecular assembly, structure and function
(4) Theoretical and computational chemistry
(5) New system of materials chemistry related to energy and resources
(6) Green chemical processes and technique
(7) Natural products chemistry and drug discovery
(8) Environmental pollution chemistry and control
(9) Biomedical polymer materials
(10) Chemical biology

Department of Life Sciences

(1) Modification, identification and control of proteins
(2) Structure and function of nucleic acid
(3) Self-renewal and directed differentiation of stem cells
(4) Regulation of tissue organ development
(5) Cellular and molecular mechanisms of immune response
(6) Biodiversity and its maintenance mechanisms
(7) Genetic network and genetic regularity of complex traits
(8) Phylogeny and molecular evolution
(9) Metabolism, secondary metabolism and regulation
(10) Excavation and biological evaluation of germplasm resources
(11) Analysis of important traits of major agrobiological genetic networks
(12) Water, nutrient needs of major agricultural plants and mechanisms for efficient use
(13) Occurrence of major agricultural plant pests and mechanisms for prevention and control
(14) Occurrence of major agricultural animal diseases and its prevention and control

(15) Formation of nerve cells and the loops and signal processing mechanisms

(16) Biochemical basis of food storage and manufacturing

Department of Earth Sciences

(1) Mineralization model, mineralization system and mechanism

(2) Urbanization process and its effects on resources and environment

(3) Geological and geophysical process of continental earthquake

(4) Interactions between oceanic plate and the continental margin

(5) Coupling relation between deep and surface earth processes

(6) Seabed resources mineralization and accumulation theory

(7) Marine ecosystems and ecological security

(8) Impact of climate change on surface earth processes and ecosystems

(9) Exchange of energy and matter cycle in the climate system

(10) Solar-terrestrial energy transfer between and its impact on human activities

(11) Water resources and water cycle

(12) Dynamic mechanism and predictability of weather and climate change

(13) Asia monsoon-arid environmental systems and global environmental change

(14) Effects of key engineering projects on geological environment and hazards

(15) Origin and evolution of important biological groups

Department of Engineering and Materials Sciences

(1) Photoelectric functional materials

(2) Energy materials

(3) Environmental material

(4) High-performance structural materials

(5) Basic theory, preparation and characterization techniques of materials sciences

(6) Law of efficient resource mining and its interactions with environment

(7) Interface science of metallurgy and material preparation

(8) Function and integration of complex electromechanical systems

(9) Precise manufacturing of high performance parts / components

(10) Efficient and clean use of fossil energy

(11) Carbon dioxide capture and storage (CCS)

(12) Smart grid infrastructure

(13) Design principles and technology system for urban and rural energy-saving building

(14) Urban science in environmental change

(15) Basic theory and frontier technology of marine engineering

(16) Whole life design and control engineering structures

(17) Basic research on biomaterials and their surface and interfacial functions related to intervention medicine

(18) Efficient use of water resources in changing environment

(19) Mechanism, toxicological effects and control of combined pollution of drinking water

(20) Interdisciplinary scientific issues on energy efficiency, use of renewable energy and greenhouse gas control

(21) New materials and new artificial structural materials

Department of Information Sciences

(1) Neuroimaging information processing and its applications

(2) Network information processing and green communication networks

(3) Applications of E-Health science

(4) Theory and technology of virtual reality
(5) Trustworthy software
(6) Great demand oriented high-performance computing
(7) Basic theory and key technology of task-oriented advanced robotic systems
(8) Control and management of high-performance electric vehicle energy
(9) On-line analysis and emergency safety protection of complex system running faults
(10) New display theory and technology
(11) Advanced optical manufacturing and testing
(12) Wide band gap semiconductor materials and devices
(13) Biomedical photonics

Department of Management Sciences

(1) Behavior based complex management system
(2) Management science issues in emerging technology and service economy
(3) Public policy research
(4) Key management science issues with Chinese characteristics
(5) Regional coordinated and sustainable development
(6) Innovation systems and S&T policy

Department of Health Sciences

(1) Cardiovascular diseases
(2) Nutrition, metabolic, and diseases
(3) Immunity and diseases
(4) Tumor
(5) Aging and diseases
(6) Pain and analgesia
(7) Mental illness and mental health
(8) Infectious diseases
(9) Eye, ENT and oral diseases
(10) Injury and repair
(11) Reproductive health
(12) Health of women and children
(13) Stem cells and diseases
(14) Regenerative medicine
(15) Medical imaging and biomedical engineering
(16) New technologies and methods for disease diagnosis and treatment
(17) Epidemiologic and preventive strategies for major diseases and injuries
(18) Environmental and genetic factors and major diseases
(19) Food hygiene
(20) New drugs
(21) Pharmacogenomics and metabolomics
(22) Traditional Chinese medicine and materia medica

Joint Research Program within Bilateral Agreements/MOUs

Joint research program within bilateral agreements/MOUs includes bilateral or multilateral joint research projects funded by NSFC and its international partners under the framework of cooperation agreements /MOUs signed among them in hope of supporting Chinese researchers and their collaborators abroad to carry out their research in basic sciences.

As eligibility for application, priority funding areas, application deadlines, reporting requirements,

applicants are referred to Regulations on the management of NSFC International (Regional) Joint Research Programs and the calls for proposals launched on NSFC website.

International (Regional) Exchange Program

The Program aims to encourage NSFC grantees to participate in extensive international cooperation and exchange activities, and to enhance the innovativeness, talent training, disciplinary development and research quality of the on-going NSFC projects. Meanwhile, it encourages scientists to maintain sound bi/multilateral relations with overseas partners through wide cooperation and exchange.

Eligibility of Applicants:

Researchers need to hold or participate in on-going NSFC projects with duration of no less than 3 years.

Funding Contents:

The Program funds Chinese scientists to carry out exchange activities with foreign scientists on subjects of common interest and closely related to ongoing projects of NSFC. The Program mainly funds personnel exchange activities, and the funding for this program covers international travel costs for Chinese scientists and the local cost including meals, accommodation and travel cost between cities in China for oversea collaborators in China.

Supplemental Documents and Relevant Requirements:

Supplemental documents include cooperation agreement signed by Chinese and foreign PIs, invitation letters to Chinese team to go abroad and confirmation letter of visit to China signed by foreign collaborators. One application may cover costs for both the visit of Chinese to go abroad and hosting the collaborators in China if that will be happened in the same year.

Application Window and Channel:

Proposals for international/regional exchange program out of bilateral agreements/MOUs should be submitted to the relevant science department of NSFC that is in charge of the on-going project no less than 3 months prior to the planned dates of collaborative activities.

For the international/regional exchange program within bilateral agreements/MOUs, eligibility of applicant, priority funding areas, funding duration, and requirements are referred to the part of " Funding Program " of the International (Regional) Cooperation and Exchange of the *Guideline to Programs* and the calls for proposals irregularly launched on NSFC website.

International (Regional) Conferences

To enhance the international reputation and competitiveness of basic research in China, NSFC funds its project undertakers to hold international conferences in China, aiming to improve the research quality of NSFC projects and expand the international impact.

The conferences held in China should be closely related to the on-going NSFC projects, and the themes of these conferences shall be of major significance to the progress of relative scientific disciplines in China and in line with NSFC priority areas, and facilitate the implementation of NSFC funded programs. NSFC also supports its project undertakers to organize and take part in academic workshops and summer school held in China or abroad within the framework of its agreements with overseas partners and within bilateral agreements/MOUs.

Eligibility of Applicant:

Researchers holding or participating in on-going NSFC projects with duration of no less than 3 years may send their applications to the relevant scientific departments of NSFC.

Funding Contents:

Costs for startup the conference include the cost of preparatory meetings, printing conference documents, etc.

Supplemental Documents and Relevant Requirements:

Supplemental documents include copies of approval documents granted by the upstream authorities in charge of the PI's home institutions, name list of foreign participants in the conference, announcement of the conference, etc.

Application Window and Channel:

Proposals for international/regional conferences held in China out of bilateral agreements/MOUs should be submitted to the relevant science department of NSFC that in charge of the on-going project no less than 3 months prior to the planned date of the conferences. Please note that no proposals for international/regional conferences out of bilateral agreements/MOUs are accepted by NSFC during its annual concentrated application window.

For the international/regional exchange program within bilateral agreements/MOUs, concrete eligibility for application, priority funding areas, funding duration, and requirements are clarified in the part of "Introduction to Funding Channels and Programs within Bilateral Agreements/MOUs" in this chapter and the calls for proposals irregularly launched on NSFC website.

Research Fund for International Young Scientists

Established in Feb. 2009, the Research Fund for International Young Scientists aims to support foreign young researchers with excellent educational background, Ph. D. degrees and great potential to carry out their basic research in mainland China based universities and academic institutes. Eligible applicants should have certain research experience and host institutions in China. The research fund is for now jointly operated by the Chinese Academy of Sciences, Ministry of Education (MOE) and NSFC as a trial. Candidates are selected from those recommended by CAS and MOE, and have to submit individual applications which will be evaluated by NSFC expert panel. The host institutions in China are responsible for providing necessary working and living conditions for the applicants.

The applicants shall satisfy the following requirements:

(1) Excellent foreign young researchers with Ph. D. degrees, less than 35 years old on January 1 of year of application.

(2) No less than 3 years of experience in basic research in renowned universities and academic institutes, or postdoctoral experience.

(3) Work in Chinese universities or research institutes successively for 6 months or 12 months.

(4) Obey Chinese laws and NSFC's managerial rules during the stay in China.

The host institutions shall satisfy the following requirements:

(1) The host of applicant in the host institution is assigned as the contact person to provide consultation for the foreign applicant and assist him/her in managing the fund.

(2) An agreement to be signed with the applicant includes the following.

(i) Topic, direction and targets of the research;

(ii) Living and working conditions provided for the applicants during the stay in China;

(iii) Time period the applicants promised to work in the host institutions;

(iv) An agreement on protection of intellectual property rights.

In 2011, a total of 40 new applicants were funded with 7.5 million yuan, and 21 grantees are approved for renewed funding with 4 million yuan. In 2012, around 80 applicants and 20 grantees are planned for funding with a total budget of 20 million yuan.

Currently funding period for the research fund lasts for either 6 (Jan. 1 to Jun. 30, or Jul. 1 to Dec. 31) or 12 months (Jan. 1 to Dec. 31, or Jul. 1 to Jun. 30 next year.), with a funding of 100,000 RMB and 200,000 yuan respectively.

Funding Contents:

Research costs and costs for international collaborative activities.

Supplemental Documents and Relevant Requirements:

Supplemental documents include a copy of cooperation agreement signed between the applicant and his/her host institution in China, 2 recommendation letters (at least 1 of the letters is written by a foreign scientist), a copy of the applicant's Ph. D. degree diploma, and representative publications by the applicant.

Please refer to the Special Notice on the Research Fund for International Young Scientists announced on NSFC's website for more detailed information concerning the recommendation and application in 2012.

Cooperation and Exchange with Different Countries and Regions within Bilateral Agreements/MOUs

In accordance with the cooperation agreements/MOUs signed with international science funding agencies and academic institutions, NSFC continues to make efforts to fund international joint research projects and to normalize and better the management of funding, review, and assessment of the results achieved by the joint research projects funded.

Since the international partners of NSFC are located in different countries and regions, with varied start dates of fiscal year and diverse windows for application and related requirements, it is impossible to present a thorough and detailed account here in this *Guide to Programs*. Therefore, applicants are referred to the calls for proposals launched on NSFC's website for detailed information about a specific joint research program.

Asia, Africa and International Organizations

By 2011, NSFC has signed bilateral agreements or MOUs on S&T cooperation with 12 scientific funding organizations in Asia and Africa and 7 international organizations in the world. The international activities funded under the framework of these agreements and MOUs include joint research projects, personnel exchange projects, and academic conferences.

A3 Foresight Program

Jointly sponsored by NSFC, Japan Society for Promotion of Science (JSPS) and National Research Foundation of Korea (NRF), the A3 Foresight Program supports the cooperation of scientists from China, Japan and Korea to conduct cutting edge research in selected strategic areas, so as to foster excellent young researchers and make contributions to the solution of common regional issues. The priority funding area for 2012 is plasma physics.

The call for proposal will be simultaneously announced on the websites in November by the three parties and two 5-year projects will be jointly funded, with NSFC investing 4 million yuan in each approved project.

In accordance with the agreement of NSFC, JSPS and NRF, the funding period for the A3 Foresight Program project will be prolonged from 3 years to 5 years since 2012. Expert panels of the 3 parties will conduct an interim assessment of the projects approved after 3 years of implementation.

NSFC-JST Joint Research Program

In 2004, the NSFC and Japan Science and Technology Agency (JST) Joint Research Program was initiated by NSFC and JST on the theme of "S&T for Environmental Conservation and Construction of a Society with Less Environmental Burden". Each year, call for proposals is jointly launched by NSFC and JST on their websites respectively, and no more than 5 3-year projects are funded per year, with NSFC investing 2 million yuan for each project.

The priority funding area for the NSFC-JST Joint Research Program in 2012 is the science and technology on prevention and treatment of water pollution, and encouraged topics are as follows:

(1) Water eutrophication

(2) Industrial and domestic wastewater

(3) Radioactive contamination of wastewater

Bilateral cooperation between NSFC and JSPS

The call for proposal is issued by both organizations on their websites in June every year. The application deadline is on Friday of the first complete week in September.

(1) Exchange Projects

NSFC and JSPS jointly support no more than 10 3-year exchange projects (the exchange volume shall not exceed 60-person days each year) each year.

(2) Bilateral workshops

NSFC and JSPS jointly support 4 bilateral workshops per year organized by Chinese and Japanese scientists, of which two are held in China and two in Japan. Participants of the bilateral workshops from each side must come from at least three institutions.

Bilateral cooperation between NSFC and NRF

The call for proposals is issued by both organizations on their websites in November and the deadlines for personal exchange projects and bilateral academic workshops are January 15 of the next year. The Sino-Korean Joint Committee on Basic Science approved 21 exchange projects and 12 bilateral academic workshops in 2011. Around 30 bilateral projects (including both exchange projects and bilateral workshops) will be funded by the both sides in 2012.

(1) Exchange Projects

Around 30 2-year exchange projects are planned to be funded by NSFC and NRF in 2012.

(2) Bilateral workshops

Around 10 bilateral workshops are planned to be funded by NSFC and NRF in 2012. Participants of bilateral workshop from each side must come from at least three institutions.

Bilateral cooperation between NSFC and CSIR

NSFC and Council of Scientific and Industrial Research (CSIR) jointly fund bilateral exchange projects and workshops.

(1) Exchange Projects

NSFC and CSIR will fund no more than 5 3-year bilateral exchange projects in 2012 in such research areas as organic chemistry and chemical biology, nano-science, climate change, and astronomy, etc.

(2) Bilateral workshops

NSFC and CSIR will fund no more than 2 bilateral workshops in 2012.

Bilateral cooperation between NSFC and Israel Science Foundation (ISF)

NSFC and ISF give priority to joint research projects and bilateral workshops in the area of natural science, such as nano-science, information sciences, chemical sciences, agriculture and irrigation. The workshop themes are decided by both sides through negotiation.

Others

NSFC has signed scientific agreements for funding joint research projects and bilateral workshops with the Academy of Scientific Research and Technology of the Arab Republic of Egypt, Pakistan Science Foundation, National Research Council of Thailand, Research Foundation of Thailand, Department of Science and Technology of India, and Research Foundation of South Africa, etc. Bilateral projects are jointly decided case by case with mutual agreement.

International Scientific Organizations

Center of European Nuclear Research (CERN)

According to the cooperation agreement with CERN, NSFC supports Chinese scientists' participation

in LHC experiment at CERN jointly with the Ministry of Science and Technology and the Chinese Academy of Sciences.

International Center for Theoretical Physics (ICTP)

About 50 Chinese young scholars are funded by NSFC every year in the areas of mathematics, physics and earth science to participate in various research activities at ICTP, such as summer seminars, short-term joint research or post-doctoral research.

The list for specific activities and an open call for candidates is to be announced on NSFC's website in November every year. Name list of selected candidates are further recommended to ICTP. The recommended candidates should apply to ICTP according to ICTP requirements.

International Institute of Applied Systems Analysis (IIASA)

NSFC encourages Chinese scientists to conduct multilateral cooperation with various IIASA project groups in the areas of energy, environment, land use, population, etc., and to jointly apply for research funding from various governmental organizations, private and national foundations, World Bank and EU Framework Program. The call for proposals will be launched on NSFC's website in January and the application deadline is March 20 every year.

NSFC provides necessary supports fully or partially for several Chinese young scholars to participate in the annual 3-month Young Scientists Summer Program from May to August at IIASA every year. For detailed information, please refer to the IIASA website at http://www.iiasa.ac. Besides, NSFC also support workshop, cooperation and exchange and joint research projects jointly sponsored by Chinese and IIASA scientists.

In 2011, 1 5-year joint research project was funded with a total funding of 2 million yuan, and 2 4-year joint research projects were funded, with a total funding of 600,000 yuan for each project.

Consultative Group on International Agricultural Research (CGIAR)

International Rice Research Institute (IRRI)

NSFC has reached agreements with 5 CGIAR institutes/centers (i.e., IRRI, CIMMYT, ICRAF, Bioversity, and IFPRI) to fund joint research projects conducted by bilateral scientists. The funding period for each project is 5 years. In 2011, a total of 7 joint research projects were jointly funded.

Apart from the above-mentioned 5 CGIAR institutes/centers, NSFC plans to collaborate with another 3 CGIAR institutes/centers (i.e., CIP, CIAT, and ILRI) to fund 5-year joint research projects in 2012. No more than 10 projects are planned for funding and NSFC will grant 2—3 million RBM for each approved project. The following are the finalized priority funding areas for 2012:

(1) Cooperation Areas with IRRI: basic research on mining and use of high-quality, high-yield, stress-resistant rice germplasm resources; basic research on high-yield rice and efficient use of resources under climate change conditions; research on the formation mechanism of sustainable resistance for major rice pests and diseases; research on the genetic regulatory networks of important agronomic traits in rice.

(2) Cooperation Areas with CIMMYT: basic research on mining and use of high-quality, high-yield, stress-resistant corn and wheat germplasm resources; physiological and genetic basis of wheat and corn quality improvement; improve water and nutrient use efficiency cultivation theory and models; basic research on wheat and corn pest and disease control.

(3) Cooperation Areas with ICRAF: global change and key terrestrial ecosystems (farmland, forest, grassland) response; conservation and utilization of woody plant germplasm resources; research on the genetic diversity of woody plant.

(4) Cooperation Areas with Bioversity: agricultural biodiversity, climate change and management of sustainable ecosystem; conservation of different habitats original habitats of agricultural biodiversity and genetic diversity.

(5) Cooperation Areas with IFPRI: the impact of climate change and extreme weather on China's food security and evaluation of the effectiveness adaptive strategies; comparative study of the agricultural public policies and rural poverty in China and Africa; analysis of changing agricultural products markets, food safety and value chain.

America, Oceania and Eastern Europe

NSFC has signed scientific cooperation agreements or MOUs with science funding organizations and research institutions in 12 countries in America, Oceania and Eastern Europe. Categories of programs to be funded include joint research, short-term visits and bilateral academic workshops.

USA

In 2012, priority for the bilateral collaboration between China and the USA in such areas as mathematical and physical sciences, chemical sciences, life sciences, engineering and materials sciences, information sciences, management sciences, and health sciences. Bilateral workshops, personnel exchanges, and substantial joint research projects in areas of common interest are especially encouraged.

The U. S. National Science Foundation (NSF)

1. Personnel exchange program and bilateral workshops

(1) Case-by-case application

Chinese applicants may apply to NSFC at any time of the year together with NSF approval materials provided by the U. S. counterparts, while the U. S. counterparts apply to NSF according to NSF's specific requirements.

(2) NSFC-NSF Exchange Projects in Biodiversity Research

To promote bilateral cooperation and development in global change area, NSFC and NSF fund exchange projects between Chinese and US scientists, to encourage them to set up and maintain new cooperative relationship. NSFC will invest up to 750,000 RMB in each approved 5-year project. Cross-disciplinary, cross-organizational and cross-regional research, training and educational activities between Chinese and US scientists are encouraged and the participation of young researchers, post-docs, postgraduates and undergraduates are welcomed. Exchange activities include personnel and student exchange, launch of public websites as well as some workshops. For detailed requirements, please refer to the call for proposals launched on NSFC's website.

2. Joint Research Projects

NSFC and NSF will accept joint research applications in the areas of materials sciences, global change, information sciences at a certain time of the year.

(1) NSFC-NSF Joint Research Projects in Materials Sciences

To promote joint research in material science between Chinese and US scientists, NSFC and NSF together fund joint research projects with an implementation period of 3 years between scientists of both countries. NSFC provides up to 2 million RMB for each approved project, covering research costs, international travel costs and local accommodation of visiting researchers. NSF provides matching fund to cover research fee and international travel costs for U. S. scientists as well as living expenses of Chinese scientists in the U. S. For detailed requirements, please refer to the call for proposals launched on NSFC's website.

(2) NSFC-NSF Joint Research Projects in Advanced Sensors and Bio-inspired Technologies

To promote joint research in Advanced Sensors and Bio-inspired Technologies (ASBIT) between Chinese and US scientists, NSFC and NSF together fund joint research projects with an implementation period of 3 years between scientists of both countries. NSFC provides up to 1.2 million RMB for each approved project, covering research costs, international travel costs and local accommodation of visiting researchers. NSF provides matching fund to cover research fee and international travel costs for U. S. scientists as well as living expenses of Chinese scientists in the U. S. For detailed requirements, please refer to the call for proposals launched on NSFC's website.

(3) NSFC-NSF PIRE Program

Chinese researchers may apply for matching fund from the International Joint Research Program of NSFC if their U. S. partners have been granted with the PIRE (Partnerships for International Research and Education) fund by NSF before March 20 as long as they are qualified applicants for this program.

Chinese applicants shall provide information about NSF's PIRE funding for US partners in their application documents. For detailed requirements, please refer to the call for proposals launched on NSFC's website.

The U. S. National Institutes of Health (NIH)

NSFC and the U. S. National Institutes of Health (NIH) signed an MOU on Oct. 14, 2010 and launched the first round of pilot cooperative projects in 2011. Both agencies will continue to fund joint research projects on cancer, allergic diseases, infectious diseases (including HIV/Aids and comorbidities), medical immunology, mental health, etc. For detailed requirements, please refer to the call for proposals launched on NSFC's website.

Russia

In 2012, NSFC and the Russian Foundation for Basic Research (RFBR) will jointly support cooperation and exchange activities in areas of mathematical, mechanical and information sciences, physical and astronomical sciences, chemical and materials sciences, biological and medical sciences, earth sciences, telecommunications and computer sciences, basic engineering and management sciences. Projects to be supported can be classified into two categories:

(1) Exchange program under the agreement framework (exchange between researchers)

In accordance with the agreement between NSFC and RFBR, the joint call for proposal for this program is announced once a year and Chinese and Russian teams shall each have five researchers. Projects approved will receive a two-year funding with 90,000 yuan from NSFC, for international travel costs of Chinese researchers to Russia and local costs of Russian researchers in China. Altogether both sides fund up to 50 projects each year. The call for proposal for 2012 will be announced on the websites of NSFC and RFBR in February 2012.

(2) Bilateral workshops under the agreement framework

Both sides approve around 10 bilateral workshops each year.

The themes of the workshops shall focus on the priority areas of both countries and aim at fostering substantial cooperation. The workshops may be held in either China or Russia. In principle, the number of participants from the sending party shall not exceed 8 while those from the host party shall not exceed 12. NSFC give priority to workshops with participants from more than one institution, and Chinese participants shall be from at least 2 research institutions. Workshops with Chinese participants from one institution only cannot be funded. Participants who do not come from the institutions that submit the applications shall provide confirmation letters from their own home institutions for their participation in the workshop. The sending party provides the fund for international travel costs and the host party covers the fund for local subsistence for participants as well as costs related to the organization of the workshops.

Besides submitting the paper version application and relative documents, the Chinese applicants shall fill in and submit the English version of application form attached in the call for proposal to NSFC. Please refer to the call for proposal for the English application in details.

Please refer to the NSFC's website for detailed requirement in 2012. Applications submitted beyond the batch reception period for this program will not be accepted.

In addition, NSFC and RFBR are now discussing the possibility to fund joint research projects in certain key areas under the framework of bilateral agreement. Please refer to the "Notices and Announcements" column of the NSFC's website for the latest progress.

Canada

(1) Exchange Projects

In 2012, NSFC and NSERC will continue to accept applications for exchange projects under the framework of the agreement between NSERC and NSFC at any time during the year.

In 2012, NSFC and Fonds de la Recherche en Sante du Quebec (FRSQ), Canada will keep on their joint funding for exchange projects under the framework of agreement between FRSQ and NSFC. Applications concerned could be accepted at any time during the year. Besides, both sides will launch call for joint

research proposals in the field of aging. For detailed requirements, please refer to the call for proposals launched on NSFC's website.

(2) Joint Research Projects

In 2012, NSFC and the Canadian Institutes of Health Research (CIHR) will continue to support joint research projects between Chinese and Canadian scientists in the areas of health-related basic research. Each project will normally be carried out over 3 years. NSFC will provide 1 million RMB for each jointly approved project, and the grants may be used to cover expenditures directly related to the research project, international travel and subsistence costs for exchange visits. CIHR also provides an equivalent amount of funds for expenditures directly related to the research project, international travel and subsistence costs for exchange visits. The priority funding areas, number of projects to be funded, concrete application procedures will be clarified in the call for proposals to be launched on the websites of both agencies.

In addition, NSFC and CIHR are planning to fund larger-scale joint research projects in the area of Alzheimer's Diseases and related diseases. For more detailed information, please refer to the joint call for proposals to be launched on NSFC's website in February 2012.

Australia

In 2012, NSFC and the Australia Research Council (ARC) will continue to fund exchange projects within the framework of bilateral agreement between ARC and NSFC.

Others

NSFC will continue to fund exchange projects in 2012 under the framework of bilateral agreements signed with the Czech Science Foundation, the Foundation for Research, Science and Technology in New Zealand, and funding agencies in other countries.

Western Europe

NSFC has signed agreements and MOUs on scientific cooperation with 30 science foundations or research councils in 16 countries in European countries. Activities to be funded include short-term exchange visits, bilateral academic workshops and joint research.

EU

Based on the sound foundation laid for bilateral cooperation, NSFC and DG-RTD decided to jointly support substantial joint research projects in areas of common interest by providing both research funds and costs for international cooperative activities. For detailed requirements, please refer to the call for proposals launched on NSFC's website.

UK

Royal Society

NSFC and the Royal Society of UK (RS) provide support up to 20 joint projects with a period of 2 years. NSFC provides international travel costs for Chinese scientists and local costs for British scientists in China. RS provides at most 6,000 pounds for each project, covering international travel costs for British scientists to China and local costs for Chinese scientists in UK. In the midyear of 2012, NSFC and RS will announce their call for proposal simultaneously in both countries. Chinese scientists shall submit proposals directly to NSFC and UK scientists to RS, and the results will come out at the end of December 2012. Projects approved will start on April 1, 2013 and end on March 31, 2015.

RSE

NSFC and the Royal Society of Edinburgh (RSE) fund 2-year joint research projects between scientists from China and Scottish region in areas of common interest, according to the MOU signed between

NSFC and RSE. The specific areas for cooperation and the number of projects to be approved each year are decided by both sides through negotiation. NSFC provides international travel costs for Chinese scientists to UK and local costs for British scientists in China. RSE provides at most 6,000 pounds for each project, covering the international travel costs for British scientists to China and local costs for Chinese scientists in UK. NSFC and RSE will announce their call for proposal simultaneously in both countries in the midyear of 2012. Chinese scientists should submit proposals directly to NSFC and Scottish scientists to RSE, and the result will come out before the end of 2012. Projects approved start on Jan. 1, 2013 and end on Dec. 31, 2014.

RCUK

(1) Workshops

NSFC will continue to cooperate with UK Research Councils such as EPSRC, BBSRC, NERC and MRC to fund small-scaled bilateral workshops co-organized by Chinese and British scientists.

(2) Joint Research Program

NSFC and Research Councils in UK (RCUK) fund substantial collaborations between scientists of both countries in areas of common interest, in consideration of the existing cooperation between scientists. NSFC and the Research Councils will publish their call for proposal after discussion, and scientists from both countries shall submit proposals to their respective funding agencies. According to the evaluation results, NSFC and RCUK will together make decisions for funding including research expenditure, international travel costs and living expenses for exchange of personnel. For detailed requirements, please refer to the call for proposals launched on NSFC's website.

Germany

According to the agreement on cooperation between NSFC and DFG, the both sides provide supports for short-term (no longer than 3 months) research visits, bilateral workshops and joint research projects.

(1) Exchange Program

Chinese and German scientists shall submit their applications to their own funding organizations 3 months in advance. The final decision for funding will be jointly made after evaluation and consultation. No call for proposals will be launched, and applicants may submit their applications throughout the year.

(2) Workshops

Chinese and German scientists shall submit their applications to their own funding organizations 3 months in advance. The final decision for funding will be jointly made after evaluation and consultation. No call for proposals will be launched, and applicants may submit their applications throughout the year.

(3) Joint Research Program

NSFC and DFG encourage substantial joint research between scientists of both countries. Funding for the projects includes research expenditure, international travel costs and living expenses for exchange of visit. For detailed requirements, please refer to the call for proposals launched on NSFC's website.

France

CNRS

NSFC and French National Center for Scientific Research (CNRS) support exchange of visits between Chinese and French scientists. NSFC funds international travel costs for Chinese scientists to France and the local costs for French scientists in China, and CNRS funds the local expenses for Chinese scientists in France and international travel costs for French scientists to China. The call for proposal will be announced in mid 2012, and the results will come out before the end of January, 2013. Approved projects will start on Feb. 1, 2013 and end on December 31, 2013.

Both sides will conduct an evaluation of the China-France Summer Mathematical Institute projects jointly funded in 2012, so no applications for this program will be accepted in 2012.

ANR

According to the MOU signed between NSFC and ANR, both sides encourage substantial cooperation

in areas of common interest between scientists and research groups of both countries. The call for proposals will be announced on the NSFC's website in January 2012.

Others

Under its respective agreements with CEA, INRA, and IFREMER, NSFC provides funding for joint research and bilateral academic workshops between Chinese and French scientists in the area of basic research.

Finland

Academy of Finland (AF)

According to the agreement of scientific cooperation between NSFC and the Academy of Finland (AF), both sides provides necessary support for exchange activities (usually less than 3 months) and bilateral academic workshops between Chinese and Finnish researchers.

(1) Exchange Projects

Chinese and Finnish researchers shall submit their applications for personnel exchanges and visits throughout the year to their respective funding agencies 3 months in advance, and the joint funding decision is made according respective evaluations and consultation.

(2) Bilateral Workshops

Chinese and Finnish researchers shall submit their applications for bilateral workshops throughout the year to their respective funding agencies 3 months in advance, and the joint funding decision is made according respective evaluations and consultation.

(3) Joint Research Program

NSFC and AF encourage scientists or research teams of both countries to carry out substantial joint research in areas of common interest. Funding for the projects includes research expenditure and international exchange costs. For detailed requirements, please refer to the call for proposals launched on NSFC's website.

Austria

Austrian Science Fund (FWF)

According to the agreement of scientific cooperation between NSFC and Austrian Science Fund (FWF), both sides support academic exchanges and joint research in areas of common interest. Each year, the both sides will decide the collaborative areas and the numbers of projects which will be funded through discussion, make simultaneous call for proposals, and accept proposals from scientists of their respective countries. Funding for the projects includes research and international exchange costs. For detailed requirements, please refer to the call for proposals launched on NSFC's website.

Netherlands

Netherlands Organization for Scientific Research (NWO)

According to the MOU between NSFC and the Netherlands Organization for Scientific Research (NWO), both sides support short-term academic studies, personnel exchange (usually less than 3 months) and bilateral academic workshops between Chinese and Dutch researchers.

(1) Exchange Program

Chinese and Dutch researchers shall submit applications for personnel exchanges and visits to their respective funding agencies 3 months in advance, and both organizations will make joint funding decisions based on respective evaluations. No call for proposals will be launched, and applicants may submit their applications throughout the year.

(2) Bilateral Workshops

Chinese and Dutch researchers shall submit applications for bilateral workshops to their respective funding agencies 3 months in advance, and both organizations will make joint funding decisions based on

respective evaluations. No call for proposals will be launched, and applicants may submit their applications throughout the year.

(3) Joint Research Program

NSFC and NWO encourage scientists or research teams of both countries to carry out substantial joint research in areas of common interest. Funding for the projects includes research expenditure and international exchange costs. The call for proposals will be launched on NSFC's website in January 2012.

Hong Kong and Macao SARs and Taiwan Region of China

NSFC supports various forms of cooperation and exchange between the inland and Hong Kong, Macao, and Taiwan scientists in areas of mutual interests. By far, NSFC has signed scientific cooperation agreements with 6 science funding agencies in Hong Kong, Macao, and Taiwan, i. e., Research Grant Council of Hong Kong (RGC), Beijing-Hong Kong Academic Exchange Centre, Croucher Foundation, Macao Foundation, Macao Foundation for the Development of Science and Technology, and K. T. Li Foundation for the Development of Science and Technology. Cooperative activities jointly funded include academic conferences and joint research projects.

NSFC and the Research Grant Council of Hong Kong (RGC) will continue to fund join research in areas of natural sciences. Priority funding areas include information sciences, biological sciences, new materials, marine and environmental sciences, medical sciences, and management sciences.

NSFC and Beijing-Hong Kong Academic Exchange Centre and the Croucher Foundation fund jointly collaborative activities in areas of common interest case by case.

NSFC will continue to support various activities of scientific cooperation and exchange with substantial contents between inland and Macao scientists. Emphasis will be put on research projects related to environmental protection, urban development, and modernization of traditional Chinese medicine.

NSFC has been dedicating to encourage and promote scientific cooperation and exchange between scientists on both sides of the Taiwan Straits. In 2012, NSFC will continue to support cross-Straits academic workshops held by scientists from mainland China and Taiwan. NSFC will also fund substantial joint research projects in the area of tropical diseases according to the consensus reached with K. T. Li Foundation for the Development of Science and Technology.

Sino-German Center for Research Promotion

The Sino-German Center for Research Promotion, jointly founded by NSFC and DFG in October, 2000, aims at promoting scientific cooperation and exchanges among institutions of higher learning in China and Germany in the fields of natural sciences, biological sciences (including medical sciences), engineering sciences, and management sciences. NSFC and DFG provide respectively 50% of the Center's budget and the budget for 2012 will reach around 40 million RMB.

The budget of the Center is a special fund from NSFC and DFG. Scientists from universities and academic institutions of both China and Germany are able to can apply to the Center. Projects funded the Center will not be counted into the limitation on the number of projects one PI may hold according to NSFC regulations and require no on-going NSFC funded projects. However, applicants should be PIs or participants in of projects ever funded by NSFC. German applicants should apply in line with DFG requirements. The Center accepts proposals submitted jointly by Chinese and German scientists at any time of the year, but applications have to be submitted at least 3 months prior to the implementation of the projects.

The Center currently provides funds for the following categories of activities:

1. Bilateral Academic Workshops

The center encourages Chinese and German scientists to have in-depth discussion on cutting edge issues in a certain scientific research area. The main purpose of the workshop, which can be held either in

China or in Germany, is to foster joint research projects through discussion and exchange. Each workshop can have 15 participants from the sending party and 25 participants from the host party. Participants shall represent the academic level of the relative country and come from different universities or scientific institutions. However, organizer of the workshop can invite participants from the third countries as long as the number does not exceed 20% of the total number from the sending party. The Center funds international travel expenses and local subsistence of all formal participants and other necessary costs for the workshop. The Center does not provide fund for participants from industries or administrative institutions or postgraduates, nor multilateral or international workshops.

2. Joint Research Projects

In principle, applicants of such projects shall have been funded by the Center in the past, usually through bilateral academic workshops sponsored by the Center and should be grantees of NSFC or DFG funded research projects. The areas of cooperation shall be the priority areas of NSFC's funding. The fund for joint research project covers consumables, publishing and travel costs, as well as expenses related to the organization of meetings. The Center does not fund personnel salaries, for which German applicant may apply to DFG in the case of the requirement from German side. Funding for each project approved is usually 600,000—1,000,000 yuan (or the equivalent of Euros) for both Chinese and German scientists. The duration of the projects shall not exceed 3 years.

3. Sino-German Joint Research Group

The Center adopts flexible modules to funds Sino-German joint research groups for in-depth cooperation between Chinese and German scientists in clearly defined areas. Chinese and German scientists may apply for this program to plan for larger projects and establish necessary collaborative platform. Funding for this program covers costs for bilateral workshops, short-term exchange of visits, joint research, publications and consumables, etc. Applicants may apply for funding according to the funding standards of the Center, which does not provide staff salaries. Applicants must be participants of workshops or undertakers of projects funded by the Center so as to ensure both sides have already laid a foundation for cooperation and good communications and coordination. The funding period is 3 years and should not be prolonged.

4. Funding Schemes for Young Scientists

(1) Short-term Seminar

The scheme aims to introduce advanced scientific methods, techniques and their applications and provide training of specific issues in a certain area. The Center is bale to fund 4 to 6 senior scientists from both countries as lecturers and participants shall be mainly university undergraduates, graduates or young researchers. The number of participants is assessed according to specific conditions, such as equipment and infrastructure of the laboratory, but it shall not exceed 40 people in total. The seminar can be held either in Germany or in China and usually lasts at most 14 days, including two days for arrival and departure. The number of participants from sending party shall not exceed 15. Funding includes international travel, local accommodations as well as costs for the organization of the meeting and academic tours.

(2) Lindau Ph. D. Students Fund and Lindau Postdoc Scholarship

The Center, together with Lindau Nobel Laureates Foundation, funds 35 (including 10 in the field of economics) excellent Ph. D. students or postdocs under the age of 35 to participate in the Nobel Laureate meeting in Lindau, Germany, followed by a week-long visit to the German research institutions. Candidates are selected throughout the country and must be recommended by their home institutions. The final approval list is decided by correspondence review and interviews by Chinese and German reviewers.

Grantees with Ph. D. degree of this program may apply the funding from the Center for a 12-month stay in Germany if they could get invitations from German research institutes or universities.

(3) Visit of German Excellent Young Researchers to China

This is a new funding scheme launched by the Center for excellent young German scientists. During

the trial period, grantees of DFG's Emmy Noether program or other programs of equivalent quality, such as the principle investigators of SFB-excellent young research groups, grantees of the ESF Starting Grants, Lichtenberg Professorship and principle investigators of Young Research Teams, can apply for this program. The Center funds German young scientists to come to China for academic visits and research, and explore bilateral cooperation with their Chinese partners. The funding covers international and domestic travel costs and local subsistence in China. Short-term academic visits usually last less than 2 weeks and the grantees can visit at most 3 cities, of which the visits shall be already arranged by host institutions and hosts, during their stay in China.

(4) Young Scientists Forum

The program aims at providing an opportunity for Chinese and German young scientists to meet and discuss with the outstanding scientists in their own fields. The forum shall have a specific focused theme and can in principle invite at most 15 Chinese and 15 German young scientists under the age of 40, and several senior scientists depending on the scale of the forum. Funding includes international and domestic travel costs, local subsistence and other necessary costs for the forum.

5. Publication

The Center funds publication of proceedings, joint publications and special journals for scientific results of Chinese and German cooperation. Funding will be at most 5,000 Euros or 50,000 yuan. The Center does not fund publication of textbooks, translated works, etc.

6. Pre-Activity Planning

The Center invites application from qualified applicant who would like to pay a visit to make preparation and plans for a meeting or a project, and to organize small-scale meetings to formulate such plans. The funding is provided for a short visit and only 1 person could be funded.

The Center accepts applications for the above-mentioned 6 categories of activities jointly submitted by scientists from Chinese and German universities and research institutions. Applications must be written in both Chinese and German or Chinese and English, and submitted 3 months before the start of the applied activities (8 copies in written form and one electronic copy for each application). The content of the Chinese and German (English) version applications shall be the same. In the applications, the content, theme, academic significance and academic purpose of the project, the participants, contact information, detailed schedule as well as specific costs and distribution shall be specified. Related personnel costs shall be listed according to the funding standard set by the Center on its website. The applications will be evaluated by Chinese and German reviewers and the Center will make final decision according to the evaluation results.

Specific requirements and relevant information are available on the website of the Center: http://www.sinogermanscience.org.cn.

Calls for Papers of Science Foundation in China

Science Foundation in China (SFC), which started publication in 1993, is the English edition of Bulletin of *National Natural Science Foundation of China* (In Chinese), an official journal of National natural Science Foundation of China. It aims at publicizing the outstanding achievements in China's basic research, reviewing the strategy for the development of basic research, and promoting international cooperation and exchange while at the same time introducing the supporting policy, the management and the operation of the National Science Foundation of China, and enhancing and strengthening the understanding and contact with related international departments for the management of science research.

As the editors of this journal, we call for any papers and articles which are related about the Research Fund for International Young Scientist. Your papers could be the brief general introduction to your program and your scientific career. With a word limit of no more than 3000 words. If you have some Charts, photos and graphs are also welcome. We are very pleased to receive your papers in two months. Please contact with NSFC SFC editor Wu Wei, office phone number at 010-62327094, e-mail wuwei@nsfc.gov.cn

News office、Bureau of International Cooperation, NSFC