



nano-tera.ch

swiss scientific initiative in health / security / environment systems



Call for Proposals 2011: Joint Nano-Tera.CH & SSSTC Pilot Grants

“Joint NanoTera-SSSTC Pilot Grant”

Complex engineering and information systems for
health and security of human beings
and the environment

**Call for Proposals 2011:
for
Joint Nano-Tera.CH & SSSTC Pilot Grants**

“Joint NanoTera-SSSTC Pilot Grant”

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1 Background

Nano-Tera.ch, hosted by EPFL as the leading house, was created based on the Swiss Federal Council's Message on Education, Research and Innovation, 2008-2011. With a horizontal national structure and coordination, it is now supporting a broad range of national projects. The Sino Swiss Science and Technology Cooperation (SSSTC), hosted by ETH Zurich as the leading house, is a program similarly supported by the State Secretariat for Education and Research (SER) for the promotion of bilateral science and technology cooperation with China. In combining the strengths of these two initiatives, this current joint call for proposals aims to create synergy and to encourage Swiss-Chinese research collaboration within the Nano-Tera.ch thematic areas.

In 2010, inspired by a speech given by the Chinese Prime Minister Wen Jiabao in 2009 claiming the Internet of Thing (IoT) as a national priority, a delegation consisted of representatives of the MICS (www.mics.org) and Nano-Tera.ch (www.nano-tera.ch) visited China. The strategic vision of the Nano-Tera.ch has been highly valued by the visited Chinese institutions who underlined the strong branding value of the coined "Nano-Tera.ch" name. Based on the high interest expressed by both the Swiss and the Chinese delegation and the motivation for Nano-Tera.ch to support a united front in research collaboration with China, Nano-Tera.ch has decided to support and launch a call for bilateral research collaboration with China under the umbrella of the SSSTC. The SSSTC in return, will support Nano-Tera.ch with its administrative knowhow in bilateral cooperation, as well as present these projects as joint Nano-Tera.ch & SSSTC projects to the Chinese government.

2 Overall objectives of *Nano-Tera.ch*

Nano-Tera.ch is centered on the research, development and application of micro, nano and information technologies to embedded systems, networks and software to support health, security and environmental monitoring. Energy and sustainability will also be considered as a priority in this context of complex engineering systems in the future call for 2012 and 2012-1016. The broad objectives of the program are both to improve quality of life and security of people across different levels of education, wealth and age and to create innovative products, technologies and manufacturing methods, thus resulting in job and revenue creation.

The intrinsic value of the underlying research is to bridge traditional disciplines, including but not limited to electrical engineering, micro/nano-mechanical systems engineering, bio-medical sciences and computer/communication sciences, with the objective of (i) deepening the understanding of enabling technologies and reducing scientific concepts to practice, and (ii) mastering the novel challenges of engineering tera-scale complex systems.

Nano-tera.ch has been established as a "simple partnership". This legal form enables Universities and Research Centers to meet the above cited synergetic objectives. Indeed, Nano-Tera.ch provides a neutral platform for collaboration and development of correlated unique competitive technology platforms. The members of the partnership, i.e. the partner institutions, as well as future joining members, intend to position Switzerland among the world leaders in these merging fields for Health-Security-Environment Systems Engineering. Nano-Tera.ch enhances and extends interdisciplinary research and education at the highest level to meet these challenges.

3 Specific goals of *Nano-Tera.ch*

The *Nano-Tera.ch* program has several specific goals, such as pursuing excellence in collaborative scientific research in the aforementioned disciplines, creating and expanding edu-

cational programs, constructing demonstrators of the technologies being studied and transferring the results to Swiss industry.

To achieve its research objectives, the Nano-Tera.ch program covers two major strategic axes:

- Research and development of advanced technologies, such as i) micro/nano-electronics, -electromechanical systems (MEMS/NEMS) and -manufacturing processes; ii) (bio)-sensors, actuators and their system-level integration; iii) information and communication sciences as well as systems and software engineering.
- Integration of these technologies into application fields, such as wearable systems (e.g., for monitoring of patients, sportsmen, and the elderly), ambient systems (e.g., for environmental intelligence, building monitoring and virtual world) and remote systems (e.g., remote sensing).

The *Nano-Tera.ch* program is organized in the matrix-like structure depicted below in Figure 1. The five vertical technology axes intersect the three horizontal application fields. This space defines areas of cross-disciplinary research targeted towards the overall program objectives, which are systems for health, security and the environment. Typical projects are collaborative efforts, i.e. integrated projects with different investigators and each integrated project having to aim at matching several boxes of the matrix in Figure 1

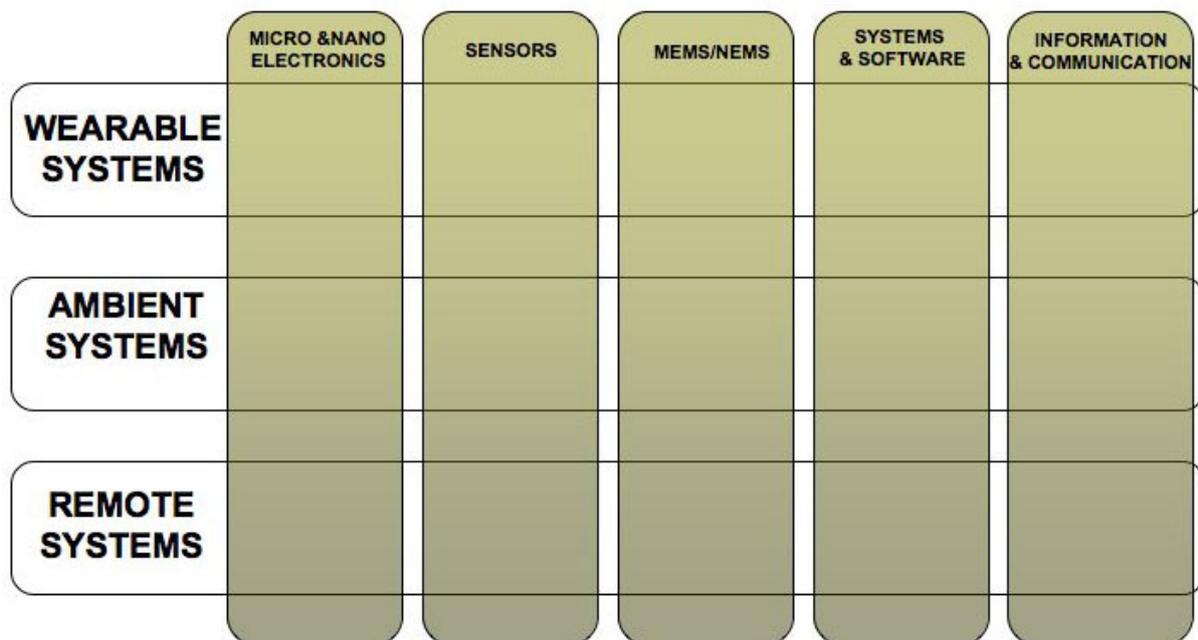


Figure 1. *Nano-Tera.ch* program structure

The *Nano-Tera.ch* program has several characteristics, which make it different from other research funding programs, namely:

- Engineering of complex (tera) systems out of small (nano/micro) components, by leveraging scientific and technological discoveries, with the objective of developing technology demonstrators that can be transformed into products in the medium term.

- Synergy of various disciplines through well-coordinated research efforts, to explore topics at the boundary of traditional scientific domains.
- Collaborative nature and significant funding size of the average research projects (and specifically RTD projects) which would not be otherwise available through usual channels.
- Social relevance, in terms of projected benefits to health, security and the environment.

4 Joint NanoTera-SSSTC Pilot Grants

4.1 Description

Recognizing the strengths of each other, Nano-Tera.ch and SSSTC decided to join force in enhancing the image of Swiss innovation in China. The current Joint Call for NanoTera-SSSTC Pilot Grants proposals is funded by Nano-Tera.ch and administratively supported by the SSSTC. The Nano-Tera.ch funding will be used to support the research activities in Switzerland and matching funding is expected to be provided by Swiss Institutions and Chinese partner institutes.

4.2 Priority Research Areas

Priority research areas are those covered by Nano-Tera.ch (see “Specific Goals of Nano-Tera.ch and figure 1 above), including and recommending, but not limiting to Wireless Sensor Networks and Internet of Things. These are recommended due to the identified objective of creating synergy in these fields with China.

4.3 Project Duration

Project duration is 1 year in maximum.

4.4 Eligibility

This call for NanoTera-SSSTC Pilot Grants is an open call to the whole Swiss research community and interested Chinese partners.

In Switzerland

Applicants shall have a regular faculty/research appointment at an eligible Swiss university or research institute. In Switzerland, these include:

- Swiss Federal Institutes of Technology
- Cantonal universities of higher education
- Federal and cantonal research institutions
- Swiss universities of applied sciences
- Other research institutions eligible for receiving federal funding

Partners from private sectors are welcome to participate but will not be eligible to receive funding.

In China

All researchers with a regular faculty appointment from a Chinese university or research institution are welcome to participate as a Chinese partner. Unlike in Switzerland, there will be neither earmarked funds nor an umbrella organization in China for this Joint NanoTera-SSSTC Pilot Grant call. Therefore, there are neither specific application forms nor proce-

dures for the Chinese partners to follow. The Chinese partners should look for funding for the collaborative projects through normal funding channels. The Ministry of Science and Technology (MOST) and Chinese Academy of Science (CAS) remain the main partners for Sino-Swiss bilateral collaboration purpose, but other funding agencies may also participate.

The eligibility of both the Swiss and the Chinese applicants will be examined jointly by the Nano-Tera.ch and SSSTC Swiss program offices.

4.5 Submission

The Chinese and the Swiss applicants should write the research plans and prepare the proposals jointly. The Swiss partners should submit the applications to Nano-Tera.ch at: admin@nano-tera.ch and to SSSTC at: maio.chen-su@sl.ethz.ch.

In Switzerland

The Pilot Grant proposals are to be submitted using the official Joint NanoTera-SSSTC Pilot Grants Proposal form (see application forms).

This form consists of two parts with requested annexes:

Part 1: Administrative details

Part 2: Research plans (max. 10 pages)

Special note:

Formal commitment in the form of a letter by the dean of the department chairperson of the participating institutions on the claimed institutional resources by the involved applicants is requested.

In China

The Chinese applicants do not have to submit a specific equivalent application in China other than **providing a “Letter of Commitment for Joint NanoTera-SSSTC Pilot Grants”** to their Swiss partners. This letter shall then be submitted by the Swiss main applicant as part of the Swiss submission. A template for this letter is provided on SSSTC and Nano-Tera.ch call websites: “*Letter of Commitment for Joint NanoTera-SSSTC Pilot Grants*”. Beyond that, it is expected that the Swiss and Chinese partners should discuss the division of the research activities and work packages. Both the Chinese and the Swiss activities and works packages shall then be formulated and included as part of the Swiss applications.

4.6 Application Deadline

Complete applications must be submitted by **June 30th 2011**.

4.7 Grant Information

Swiss funding

Total Swiss funding available to this joint call for NanoTera-SSSTC Pilot Grants is about CHF 500'000, to be provided by Nano-Tera.ch. The Swiss funding will be allocated to the Swiss applicants to cover their part of the research activities. Maximum funding per project is CHF 100'000 for one year.

Chinese funding

Chinese partners must guarantee funding for their part of research activities through normal Chinese funding channels. This guarantee will be provided in the form of a “*Letter of Commitment for Joint NanoTera-SSSTC Pilot Grants*” (see point 4.5).

4.8 Budgeting – Finance

Detailed budgeting is required and will have to be completed according to the application form for Joint NanoTera-SSSTC Pilot Grants.

Matching Fund Rule

The Nano-Tera.ch 53% matching fund rule towards requested funding (NTCH) via institutional own contributions (IOC) and third parties (3rd) (industrial partners with in-kind and/or in-cash contributions) must be satisfied. The 53% is calculated as follows: $(IOC + 3^{rd}) / (NTCH + IOC + 3^{rd}) * 100$. The Chinese contribution should be calculated based on equivalence of “buying power” which applies in particular to resources provided in terms of personnel. It is strongly recommended that the Chinese contribution be at least 33% calculated as follows: $(IOC_{cn}/(NTCH+IOC_{ch}+IOC_{cn}+3rd)=33\%$.

Guidelines for requested Nano-Tera.ch funding

Joint NanoTera-SSSTC Pilot Grants cannot be used to pay:

- Overheads of any sort
- Salaries for Swiss professors/faculty. These should be paid for by the university as part of the infrastructure.

Based on the program principle of equal partnership, the research costs should be carried by the party that performs the tasks. In principle, the international travel expense should be paid by the traveller or his/her employing institution and the local living expenses paid for by the host. Health insurance should be arranged by the traveller, if necessary, with the help from the host institute.

Allowable budget items for Swiss applicants:

- Salaries for PhD student, postdoctoral fellow, scientific assistant, senior researchers and technicians according to Nano-Tera.ch rules (respectively: 61kCHF, 120kCHF, 100kCHF, 150kCHF and 120k maxima for full time equivalent per annual).
- Equipment acquisition according to the need for the bilateral collaboration as specified in the proposal.
- Consumables as justified in the research proposal.
- Miscellaneous costs such as: travel expenses in connection with visits to the partner institution in China (economy class), expenses for the Chinese visitors in association with performing the joint research (faculty and/or students), fee for conference registration, publications, patents, etc. (max CHF 3'000).

Living allowance for visiting scientists from China:

- Short-term visits (up to two weeks):
 - o Faculty members: CHF 160 per diem
 - o Ph.D. Students: CHF 120 per diem
 - o Master Students: CHF 100 per diem
- Long-term visits (more than 20 days):
 - o Faculty members: CHF 3,200 per month
 - o Ph.D. Students: CHF 2,500 per month
 - o Master Students: CHF 2,100 per month

Guidelines for Own Contributions

Claimed matching funds in the form of in-kind contributions:

Personnel:

Direct cost attributed to personnel paid from the institution's operating budget is counted as in-kind contribution of that institution. Maxima allowed declared salaries including social charges are

- Full/associate professor 250 kF/year (max. 20%)
- Assistant professor 180 kF/year
- Senior researcher 150 kF/year
- PostDoc 120 kF/year
- Technician 120 kF/year
- PhD-Student 61 kF/year

Equipment

Equipment planned to be purchased from the institutional budget.

No existing equipment already present at an institution may be claimed as matching funds for this grant application.

Consumables, processing costs and miscellaneous

Other planned expenses directly associated with the project may be considered as in-kind contributions. These include consumables and services supplied by the home institute for the project. The degree to which such consumable and services are dedicated for the use of the proposed project should be described in the proposal.

Industrial contribution (3rd party)

Contributions to pilot grant project from industrial partners may be claimed in-cash and/or in-kind. Please note that no funding from Nano-Tera.ch may be transferred directly or indirectly to industrial partners.

4.9 Evaluation and selection

Evaluation in Switzerland

Scientific and strategic evaluation of the Swiss applications will be conducted by the Executive Committee of Nano-Tera.ch based on the following criteria:

- Formal criteria (completeness of the proposal, eligibility of the applicants)
- Scientific merit, significance, and potential impact of the proposed research
- Clear focus and well-defined scientific and technological problems
- Originality of the proposed research
- Meaningful partnership: demonstrating synergy from the partnership and added value to the involved parties
- Interdisciplinary approach
- Outcome probability towards future larger bilateral collaborative actions
- The value proposition of the proposal to support technology transfer to industry and to enhance the specific impact of Nano-Tera.ch.
- The standing of the applicants in their respective fields
- Realistic budgeting and feasibility

Evaluation in China

There will be no separate evaluation of the Joint NanoTera-SSSTC Pilot Grants proposals.

Final decision

After the evaluation process is concluded by the Executive Committee of Nano-Tera.ch, the applicants will be jointly informed by Nano-Tera.ch and the SSSTC program office.

4.10 Intellectual Property (IP)

Applicants must be aware of the potential of IP generation through the joint project and consult both the host as well as the guest institution concerning their internal regulations on intellectual property rights. For a project with market potential, it is especially important that an agreement be established before the start of the project.

4.11 Reporting

Swiss main applicants are responsible for the success and the deliverables of the projects and bear the responsibility to submit final scientific and financial reports to the SSSTC and Nano-Tera.ch program offices at the end of the project.

5 Timeline

Release of the call: **Mai 2nd, 2011**
Deadline for submission: **June 30th, 2011**
Funding decision: **August 31st, 2011**
Planned pilot projects start date: **October 1st, 2011**
Project duration: **1 year in maximum**

6 Contact references

For further requests, please contact:

Nano-Tera.ch in Switzerland

Dr. Peter Bradley
Executive Director
EPFL – INF 330
Station 14
CH 1015 Lausanne
Tel: +41 21 693 81 62
Fax: +41 21 693 81 60
peter.bradley@nano-tera.ch
www.nano-tera.ch

SSSTC in Switzerland

Dr. Maio Su Chen
International Institutional Affairs (IIA)
Program Manager, SSSTC
ETH Zürich, HG F 11
Rämistrasse 101
8092 Zürich
Tel. +41 44 632 8101
Fax +41 44 632 1508
maio.chen-su@sl.ethz.ch
www.global.ethz.ch/stc/china

Swissnex in China

Dr. Lan Zuo Gillet
Swissnex China
22F, Building A, Far East International Plaza
319 XianXia Road, Shanghai 200051, China
Tel: 0086 21 6235 1889
lan.zuogillet@swissnexchina.org
www.swissnexchina.org