



nano-tera.ch

The Swiss Initiative in

Engineering and information technology for health and
security of the human being, and the environment

Call for RTD Proposals
2009

Call for Proposals for Projects within the Framework of *Nano-tera.ch*

This call for proposals, issued within the *nano-tera.ch* initiative, deals with RTD projects only. This call replaces the 2008 call. There will be further calls in 2009 and beyond for projects other than RTDs. The deadline for the initial 2009 call is 23:59, 2nd June.

1. What are the broad 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. 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 institutions¹, 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 will enhance and extend interdisciplinary research and education at the highest level to meet these challenges.

2. What are the specific goals of this call within *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 educational programs, constructing demonstrators of the technologies being studied and transferring the results to Swiss industry. Broad and specific objectives on nano-tera.ch are described in the website www.nano-tera.ch.

Presently EPF Lausanne, ETH Zürich, University of Neuchatel, University of Basel, University of Svizzera Italiana, CSEM

To achieve its research objectives, the nano-tera.ch program addresses two 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 worlds) and remote systems (e.g., space applications such as pico-satellites, 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.

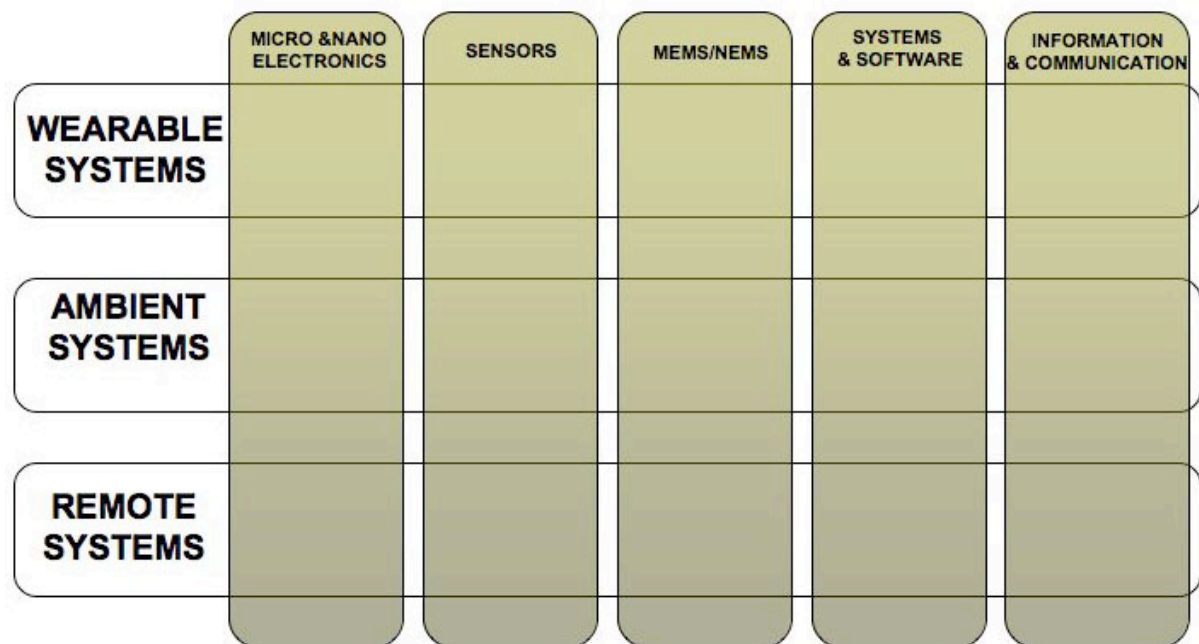


Figure 1. *nano-tera.ch* program structure

This call addresses specifically collaborative integrated projects within horizontal application areas. Proposed research **must meet** the following characteristics to satisfy the nano-tera.ch **strategic vision**:

- 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. Each project must aim at matching several boxes of Figure 1. Each proposal must address systems issues with software and hardware components.
- Collaborative nature and significant funding size of the average research projects which would not be otherwise available through usual channels (e.g. SNSF projects).
- Social relevance, in terms of projected benefits to health, security and the environment.
- Industrial participation to the proposed project through financial support in cash or in kind is appreciated and taken into account in the evaluation process.

Proposals that do not fit these requirements will **not** be funded because they do not fit the nano-tera.ch strategic vision.

3. Research, Technology and Development Projects (RTD Projects)

RTD projects are integrated research projects. Major characteristics of these projects are interdisciplinary and cooperation among research groups, preferably from different institutions, as well as the formation of doctoral students. Within one project, several research groups of complementary fields will contribute to reach the main project goals. RTD projects in this call should address research, development and implementation of a horizontal application area. A *nano-tera.ch* RTD project is to be proposed and led by one main applicant, the *Principal Investigator* (PI). The PI's institution, the so-called *hosting institution* of the RTD Project, will be responsible for the administration, coordination and reporting of the project. The PI will manage the project during proposal writing, and once it is approved, he/she ensures that it is carried to completion in all its aspects including reporting.

3.1 Duration, Finances

The expected duration of RTD projects is **3 years**, with a global budget up to **5.5 MCHF** per project, including matching funds. As required by the University Law, Article 13, and in accordance with the Message of the Federal Council on Education, Research and Innovation, for the years 2008-2011, participating institutions must provide matching funds (in cash and/or in kind).

Three sources of finance are expected to support *nano-tera.ch* projects:

A) *nano-tera.ch* funds.

B) in-kind contributions of the participating institutions.

C) cash contributions obtained from third parties.

A) *nano-tera.ch* funds

Financial support from *nano-tera.ch* to a given RTD project will be no greater than 47% of the total cost of that project. Matching funds B) and C) are therefore expected for all funded RTD projects.

B) Matching funds in the form of in-kind contributions

1. Personnel

Direct cost attributed to personnel paid from the institution's operating budget is counted as in-kind contribution of that institution. It is summarized below (salaries and social charges):

- 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

2. Equipment

Requests to include existing equipment or infrastructure as in-kind contributions will be examined and decided upon by the EXCOM case by case. In its assessments, the EXCOM will adopt commonly applied depreciation rates and determine *pro rata* the amount eligible.

3. Other contributions

Other planned expenses, directly linked with the project will be considered for in-kind contributions. They include notably consumables and services present at each institution that will be applied to the project, with the adequate rate of dedication and use.

C) Matching funds in the form of cash contributions

Cash contributions include all financial support obtained from sources different from *nano-tera.ch* with the sole purpose to support *nano-tera.ch* projects. It typically includes industrial participation in cash or in kind. Cash funds secured to support accepted *nano-tera.ch* projects are to be reported in the annual accounting statements of the corresponding institutions.

Proposals for RTD projects must be submitted on the *nano-tera.ch* application forms provided by the SNSF. Each proposal will present a detailed budget with both requested resources and secured matching funds. The present call makes available a total amount of about 25 MCHF for funding a number of RTD projects over a period of three years, starting in the summer of 2009.

3.2 Who May Apply for RTD Projects?

Faculty members of the *nano-tera.ch* partnership as well as of others Swiss Universities and of institutions of the ETH-Domain (presently not being members of the *nano-tera.ch* partnership) are eligible as Principal Investigators. After approval by the SNSF and prior to initiation of funding each qualified RTD's hosting institute must become full *nano-tera.ch* partner.

Faculty members and senior researchers of Swiss Universities, of both Polytechnics, of institutions of the ETH-Domain, of Swiss Universities of applied sciences as well as of public and private research institutions outside the academia are eligible as Co-Investigators. In the case of private research institutions eligibility for *nano-tera.ch* funding is regulated by Article 7 Paragraph 4 of the revised Research Law (see Message for Education, Research and Innovation 2008-2011, German version p. 1448).

3.3 Documentation to be Submitted

The RTD proposals are to be submitted using the official form (cf. RTD Proposal Form) that consists of two parts:

Part 1: General Information

Part 2: Scientific Information

1. Summary (1-2 pages).
2. International standing of all applicants in their field of research (2-3 pages in total)
3. Research plan (max 15 pages in total).
 - 3.1. Overall research questions, framework of the whole project, research approach and partition into tasks, task assignment to research groups, with GANTT chart showing collaboration and exchange among groups), expected added value (max 5 pages).
 - 3.2. Research plan of each task: state of the art, questions, methods, milestones and deliverables (max 2 pages for each task, GANTT chart).
4. Significance of the planned research for *nano-tera.ch* and eventual users (private industry, economy, health and public sector, etc.) (max 2 pages).

Annexes:

- Three-year budget according to instructions under 3.1.1.
- Letters of commitment of the participating institutions (cf. Commitment Form).
- Curriculum and list of the 10 most relevant publications of all applicants.
- Existing contracts, letters of support of existing or potential industry partners.

3.4 Submission Deadline

The RTD proposals are to be submitted electronically by May 31st, 2009 to both:

admin@nano-tera.ch

and

<http://www.mySNF.ch> , using the mySNF submission system.

It is the applicants' responsibility to ensure timely delivery of their proposal. SNSF and *nano-tera.ch* reject any responsibility for (electronic) mail delivery problems.

3.5 Selection Procedure for RTD Proposals

The selection of the proposals will be preceded by a formal check by the SNSF administration. Proposals that fail to comply with the formal requirements will not be admitted to the next stage of the selection procedure and will be rejected if the deficiency cannot be easily remedied. The following formal requirements must be met:

- Compliance with the submission deadline (postmark).
- Use of the official forms and completeness of the proposal written in English.
- Eligibility of the principal investigator and the co-applicant(s).

- Firm commitment of the participating hosting institution, when using large facilities and/or institutional equipment.
- Required cash/in kind contribution.

Each RTD project proposal will be evaluated according to two major principles:

- The scientific quality of the proposal.
- The strategic importance of the proposed research as a means to achieve the overall program's objectives, using the criteria described in Section 2.

RTD proposal must satisfy the strategic vision requirements, described in Section 2. Moreover, RTD proposals will be evaluated according to the following criteria listed here in an unsorted order:

1. Contribution to the state of the art in the field and impact.
2. Scientific quality of the proposal.
3. Originality.
4. Adequacy of the methodology.
5. Scientific track record of the applicants in the area of the proposal.
6. Feasibility, organization and financial planning of the proposal.
7. Integration into the overall nano-tera.ch vision (www.nano-tera.ch), matching several boxes of the matrix in figure 1.
8. Relevance of the proposal toward extending the state of the art in the nano-tera.ch domains.
9. Significant and genuine collaborative effort and synergy of the participants and corresponding budget.
10. Feasibility of the project in terms of delivering realizations of the proposed results within the nano-tera.ch program lifespan.
11. Industrial interest in the research via financial and/or technical contribution or in creating prototypes of the technology
12. Differentiation of the proposed activities as compared to other funded programs.

3.7 Annual Reporting

The annual scientific progress report and financial data of each RTD Project is to be submitted to the *nano-tera.ch* Management Office (cf. *nano-tera.ch* Ordinary Partnership Contract, Article 30.4 and Art. 37.4). Each PI and CoPI of a funded project will receive a guideline form with the specific reporting requirements and notification of the reporting deadlines at least three months in advance. The financial report to the Management Office of *nano-tera.ch* should present the use of the financial resources applied to the project, namely:

- *nano-tera.ch* funds.
- Own contributions “in cash” and “in kind” by the involved partners.
- Industrial contributions to the *nano-tera.ch* project.

4. General Information

General information about *nano-tera.ch* is available at URL: www.nano-tera.ch . Please contact the *nano-tera.ch* office if you have any questions.

Prof. Giovanni De Micheli Spokesman and Chair, Executive Committee EPFL – INF 341 Station 14 CH 1015 Lausanne Tel: +41 21 693 09 12 Fax: +41 21 693 09 09	Dr. Peter Bradley Executive Director EPFL – INF 330 Station 14 CH 1015 Lausanne Tel: +41 21 693 81 62 Fax: +41 21 693 09 09 peter.bradley@nano-tera.ch
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