



Call for proposals

The G8 Research Councils Initiative on Multilateral Research Funding

First Call for Proposals from an initiative between Research Councils from Canada, France, Germany, Japan, Russia, the UK, and the USA¹

Interdisciplinary Program on Application Software towards Exascale Computing for Global Scale Issues

CLOSING DATE FOR SUBMISSION of “Preliminary Proposals”: 7 May 2010²

NOTIFICATION FOR SUBMISSION of “Full proposal”: 28 June 2010²

CLOSING DATE FOR SUBMISSION for “Full proposal”: 25 August 2010²

At the G8 Heads of Research Councils (HORCs) meeting held in Kyoto, Japan in May 2008, the initial proposal for a multilateral funding activity was introduced. The idea presented many benefits but also challenges. Multilateral research projects could address global challenges in ways that national and bilateral activities could not. The G8 HORCs framework provided the unique opportunity to pilot a new modality for conducting international research.

Since global challenges need global solutions the following research funding organizations, hereafter referred to as the Funding Organizations, are launching a new multilateral initiative: the Natural Sciences and Engineering Research Council of Canada (NSERC), the French National Research Agency (ANR), the German Research Foundation (DFG), the Japan Society for the Promotion of Science (JSPS), the Russian Foundation for Basic Research (RFBR), the Research Councils of the United Kingdom (RCUK), and the U.S. National Science Foundation (NSF). This initiative is aimed at supporting excellent research on topics of global relevance best tackled through a multinational approach. Funding should help researchers cooperate in consortia consisting of partners from at least three of the participating countries. Research topics will be defined separately for each call.

For the Funding Organizations this gives an unprecedented opportunity to work together across a broad range of disciplines, putting into practice joint funding activities aiming to increase compatibility in funding instruments and facilitate research-driven funding without overly burdensome bureaucracy. Finding optimal ways for the Funding Organizations to fund excellent research multilaterally will be of primary importance for this initiative.

¹ Italy will not be participating in this first call for proposals.

² All closing dates will be midnight GMT

First call: Interdisciplinary Program on Application Software towards Exascale Computing for Global Scale Issues³

Simulation supported by high performance computing infrastructures has become the third pillar of science, complementary to experimentation and modeling. Major challenges of the 21st century such as climate change, energy, water, environment, or natural disasters can be addressed by high performance numerical and symbolic simulations that are both data and computer intensive. Computing resources required for these simulations, including improved model resolution, model physics, data analysis and visualization, will reach the exascale (10^{18} operations per second) level by 2020. However, taking full advantage of these resources for global scale scientific challenges will rely on application software featuring fundamentally new algorithms and data structures capable of exploiting the massive parallelism underlying future exascale level computing.

This international program aims at supporting collaborations between experts in research areas related to these global challenges and developers of future exascale platforms, so that they address together the relevant needs of the research community during the early design stages of emerging new computing systems.

Not only will such collaboration bring together global networks of experts on global topics, it will ensure the rapid and efficient application of new tools as they become available. Proposals for multilateral collaborations should therefore define milestones which can be seen as initial steps ultimately leading to the exascale challenge. They are expected to address short-, intermediate-, and long-term goals, corresponding to (approximately) 10 petaflops in 2013, 100 petaflops in 2016 and 1 exaflops in 2019.

The program will support interdisciplinary projects targeting the exploration and development of open source algorithms and data operations that are resilient, sustainable and scalable to exascale for application solutions to socially relevant global scale issues. It is only through the close cooperation of computing specialists with global scale issues specialists, including related humanity and social scientists where appropriate, that future high performance computing systems can successfully be applied to tackle essential challenges for mankind in the 21st century.

Principles for Applications - for details, please consult www.dfg.de/g8-initiative

Each consortium should be represented by a Leading Principal Investigator (LPI) who has the responsibility for submitting a joint application to the Call Secretariat. Research projects will be selected in a two-step procedure. Short "preliminary proposals" must be submitted by interested consortia by **7 May 2010**. These will be considered by a scientific review panel that will encourage submission of full proposals by **25 August 2010**. After multinational peer review of the full proposals, the intention is to fund approximately 8-10 consortia.

Principles of Funding

Within each selected consortium, funding of the participating researchers is provided by their respective national Funding Organization according to their normal terms and conditions for project funding. Funding is meant for collaborative research, not merely for networking, mobility or communication. The total budget for this call is approximately 10 million € over three

³ The program acknowledges a preliminary study of application needs and of the matching computing technologies, which was conducted through a series of international workshops (www.exascale.org) held in 2009, gathering an international community of software specialists, application specialists and funding agencies to lay the groundwork for an international activity on exascale development.

years. Funding can be provided for projects lasting for two or three years. It is expected that 8-10 research consortia will be funded in this call. It is anticipated that awards will be made by February 2011.

Eligibility

Each consortium must consist of at least one academic participant from a minimum of 3 different countries represented by the participating Funding Organizations. Consortium partners should identify a Leading Principal Investigator (LPI) for each proposal for application, management and communication purposes. The Leading PI is officially responsible for all communications with the Call Secretariat, including the submission of the Preliminary Proposal and, if encouraged to do so, the Full Proposal.

All applicants must fulfill national eligibility rules for research grant applications as set by their Funding Organizations.

More than one partner from each country is possible in each consortium. However, consortia should aim for a balanced geographical contribution to the research project.

A proposal may not include applicants from countries not represented by any of the Funding Organizations.

Selection criteria

A successful proposal will combine significant contributions by scientists from at least three of the participating countries and must show an interdisciplinary approach in addressing problems within the scope of the described call theme. The proposal should conform to program aims and designated research fields. Major evaluation criteria are:

- Scientific quality and innovativeness of the joint research plan
- Sound project management, methodological approach, feasibility and appropriateness of the joint research plan
- Added value to be expected from the research collaboration
- Balanced cooperation
- Competence and expertise of teams and complementarities of consortium (interdisciplinary / inclusion of all necessary expertise)
- Appropriateness of resources and funding requested
- Expected impacts: e.g. scientific, technological, economic, societal
- Opportunities for early career researchers

Applications that are not complete or do not meet the eligibility criteria outlined above and in the national Funding Organization's terms and conditions will be removed from the competition.

Preliminary Proposals

The selection of projects to be funded follows a two-step-procedure. In the first step, interested consortia are required to submit a [Preliminary Proposal](#), using the forms provided by the Call Secretariat.

It is requested that application forms are completed in English and submitted electronically as a pdf-file to the Call Secretariat. (Secure server details will be provided at www.dfg.de/g8-initiative within some weeks after the launch of the call).

The Preliminary Proposals will be evaluated by the Panel of Experts (PoE). The PoE consists of approximately 20 scientists, encompassing the necessary expertise to cover the call theme. The PoE will establish a pool of high quality applications based on published selection criteria (section 2) that will be encouraged to submit Full Proposals.

All Leading PIs will receive brief comments on their Preliminary Proposals from the Call Secretariat.

Full Proposals

The Full Proposal must be closely based on the successful Preliminary Proposal and substantial changes to the proposed program of research or consortium membership is not anticipated.

The Leading PI should submit one copy of the Full Proposal to the Call Secretariat (for central registration and statistics) and one copy to each of the Funding Organizations which would be responsible for awarding funds to members of successful consortia. There may be additional national application requirements. Further details will be provided in due course.

Peer review will be co-ordinated across the participating Funding Organizations using ad hoc and panel review, sharing a common review form. Each proposal will be peer-reviewed by at least three experts, none of which may be member of the Panel of Experts (PoE).

Full Proposals will be discussed and recommended for funding by the PoE based on the selection criteria and the assessments of External Reviewers, with quality of science being the primary criterion in selection. The final award decision will be responsibility of the Funding Organizations.

All Leading PIs will receive brief comments on their Proposal from the Call Secretariat.

Contact Data

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http://www.nserc-crsng.gc.ca/doc/Professors-Professeurs/G8_e.pdf
- French National Research Agency (ANR)
<http://www.agence-nationale-recherche.fr/AAP-308-G8-ANR-2010.html>
- German Research Foundation (DFG)
<http://www.dfg.de/g8-initiative>

- Japan Society for the Promotion of Science (JSPS)
http://www.jsps.go.jp/j-bottom/01_b_gaiyo.html
- Russian Foundation for Basic Research (RFBR)
<http://www.rffi.ru/>
- Research Councils of the United Kingdom (RCUK)
<http://www.rcuk.ac.uk/international/funding/geightinitative.htm>
- National Science Foundation (NSF)
<http://www.nsf.gov/od/oise/g8initiative>