NSF 2013 CPS Solicitation

Submitted by admin on Tue, 08/14/2012 - 4:26pm

CRITICAL INFORMATION FOR SUBMITTING FY 2013 CPS PROPOSALS:

There are important changes that you will encounter as you submit your FY 2013 CPS proposal. It is very important that you pay careful attention to submit correctly, so as not to have your proposal disqualified. We strongly advise that you submit your proposal early, so that if you do have problems, there will be time to recover.

Changes in merit review at NSF:
An overview is found at:
Comprehensive information is found at:
http://www.nsf.gov/bfa/dias/policy/merit_review/resources.jsp

New proposal and award guidance, which includes the changes in proposal preparation.

See the PAPPFG Frequently Asked Question list:

IMPORTANT INFORMATION FOR PROGRAMS WITH DEADLINE DATES OF JANUARY 14, 2013 OR LATER:

- If the program you are submitting to has a deadline date of January 14, 2013 or later, and you submit your proposal prior to this date, you must prepare your proposal in accordance with the newly revised Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 13-1), which requires that the one-page Project Summary include 1) an overview; 2) a statement on intellectual merit of the proposed activity; and 3) a statement on the broader impacts of the proposed activity. (See GPG, Chapter II.C.2b)
- If you prepare your proposal prior to January 14, 2013, with the intention of submitting it on or after January 14, 2013, the information that you included in the Project Summary in FastLane will be inserted into the overview text box of the Project Summary. Per PAPPG guidelines, you will need to include this information in the three text boxes (overview; statement on intellectual merit; statement on broader impacts) or FastLane will not accept your proposal. (See GPG, Chapter II.C.2b)

By posting this additional guidance, we hope to alleviate potential last minute submission problems. A related advisory is also posted on the FastLane webpage.
Cyber-physical systems (CPS) are engineered systems that are built from and depend upon the synergy of computational and physical components. Emerging CPS will be coordinated, distributed, and connected, and must be robust and responsive. The CPS of tomorrow will need to far exceed the systems of today in capability, adaptability, resiliency, safety, security, and usability. Examples of the many CPS application areas include the smart electric grid, smart transportation, smart buildings, smart medical technologies, next-generation air traffic management, and advanced manufacturing. CPS will transform the way people interact with engineered systems, just as the Internet transformed the way people interact with information. However, these goals cannot be achieved without rigorous systems engineering.

The December 2010 report of the President's Council of Advisors on Science and Technology, *Designing a Digital Future: Federally Funded Research and Development in Networking and Information Technology* calls for continued investment in CPS research because of its scientific and technological importance as well as its potential impact on grand challenges in a number of sectors critical to U.S. security and competitiveness, including aerospace, automotive, chemical production, civil infrastructure, energy, healthcare, manufacturing, materials and transportation.

We do not yet have a mature science to support systems engineering of high confidence CPS, and the consequences are profound. Traditional analysis tools are unable to cope with the full complexity of CPS or adequately predict system behavior. The present electric power grid, an ad hoc system, experiences blackouts over large regions, tripped by minor events that escalate with surprising speed into widespread power failures. This illustrates the limitations of the current science and technology, which do not enable us to conceptualize and design for the deep interdependencies among engineered systems and the natural world. At the same time, pressure to develop technologies such as renewable energy, wireless health, advanced manufacturing, smart materials, and electrified ground and air vehicles creates an unprecedented opportunity to rethink many important classes of systems.

The goal of the CPS program is to develop the core system science needed to engineer complex cyber-physical systems upon which people can depend with high confidence. The program aims to foster a research community committed to advancing research and education in CPS and to transitioning CPS science and technology into engineering practice. By abstracting from the particulars of specific systems and application domains, the CPS program aims to reveal cross-cutting fundamental scientific and engineering principles that underpin the integration of cyber and physical elements across all application sectors. To expedite and accelerate the realization of cyber-physical systems in a wide range of applications, the CPS program also supports the development of methods, tools, and hardware and software components based upon these cross-cutting
principles, along with validation of the principles via prototypes and test beds.

Three types of research and education projects will be considered, which differ in scope and goals:

- **Breakthrough** projects must offer a significant advance in fundamental CPS science, engineering and/or technology that has the potential to change the field. This category focuses on new approaches to bridge computing, communication, and control. Funding for Breakthrough projects may be requested for a total of up to $500,000 for a period of up to 3 years.

- **Synergy** projects must demonstrate innovation at the intersection of multiple disciplines, to accomplish a clear goal that requires an integrated perspective spanning the disciplines. Funding for Synergy projects may be requested for a total of $500,001 to $1,000,000 for a period of 3 to 4 years.

- **Frontiers** projects must address clearly identified critical CPS challenges that cannot be achieved by a set of smaller projects. Funding may be requested for a total of $1,000,001 to $7,000,000 for a period of 4 to 5 years.

The CPS program is cooperating with other government agencies to support cyber-physical systems research that is relevant to their missions. Dear Colleague Letters will announce these opportunities as they arise.

A more complete description of the CPS program is provided in Section II, Program Description, of this solicitation.

**CONTACTS**

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**PROGRAM GUIDELINES**

Solicitation 13-502

**DUE DATES**


January 14 - January 29, Annually Thereafter

**THIS PROGRAM IS RELATED TO**
Additional Funding Opportunities for the CCF Community

Additional Funding Opportunities for the CNS Community

Additional Funding Opportunities for the IIS Community

What Has Been Funded (Recent Awards Made Through This Program, with Abstracts)

Map of Recent Awards Made Through This Program

News

? CFP: Model-driven Approaches for Simulation Engineering ARPA-E Open Funding Opportunity in Energy R&D ?

Call for Proposals CPS Domains CPS Technologies Foundations NSF Solicitation Announcement