

NSF 02-052



**NATIONAL SCIENCE FOUNDATION
4201 Wilson Boulevard
Arlington, Virginia 22230**

Dear Colleague,

As the events of September 11 et seq. weigh heavily upon our minds, engineers often turn to thoughts of what they could do to promote peace and national security. At NSF, we are redefining our roles in the emerging new world, and the Division of Design, Manufacture and Industrial Innovation (DMII) will play a significant part. In addition to our normal, unsolicited proposal submissions, we would like to encourage exploratory proposals for amounts up to \$100,000 for performance periods of up to two years directed at the topic areas listed below. These proposals should be directed to the Engineering Design program in the DMII Division and submitted via FastLane in accordance with the Grant Proposal Guide, <http://www.nsf.gov/cgi-bin/getpub?nsf022>. There will be a one-time only submission deadline of May 15, 2002, and proposals targeted to this deadline will be accepted only between April 15, 2002, and May 15, 2002. For possible continuation of this activity and future submission dates, please refer to the DMII web site and note particularly the unsolicited submission dates posted at, <http://www.eng.nsf.gov/dmii/>. These proposals will be reviewed by panel, and up to \$1,000,000 will be made available in FY 2002 for awards.

1. Resource allocation optimization -- The events of September 11 have redefined our concept of national emergency. Several threats are now posed to our health and safety, and we need to respond by proper and effective allocation of resources, both to recover from recent events and in anticipation of potential future events. This topic area includes optimization under conditions of extreme risk and uncertainty with applications to emergency preparedness, human health and national security.

2. System design for security -- The susceptibility of a system to acts of terrorism depends largely on its design. This topic area seeks new approaches to the design of systems that incorporate terrorism resistance or that eliminate vulnerability to terrorism. This includes system design under extreme risk and uncertainty.

3. Detection -- Ideally, systems can be designed and developed to detect threats and perhaps eliminate them before they become reality. This topic area seeks innovative integration of detection devices and procedures, such as data mining and pattern recognition, to the amelioration of terrorist threats, particularly to the nation's manufacturing and service enterprises.

4. Response control -- Given that a serious threat has materialized, it becomes necessary for the nation's emergency infrastructure to react. Reaction demands good decision making, frequently under conditions of poor information. This topic area focuses on systems for the rapid collection of data and the processing of those data into information for decision making in response to threats.

5. Prevention -- The best way to deal with a threat is to eliminate it before it can become a threat. This topic area seeks innovative ideas for threat elimination, particularly those threats that could be imposed on the nation's manufacturing and service sectors.

We encourage you to discuss your ideas with the DMII program officers. George Hazelrigg will serve as an initial point of contact for this activity. You can reach him at 703-292-7068 or via e-mail at ghazelri@nsf.gov.

Sincerely,

Kesh Narayanan
Acting Division Director
Design, Manufacture
and Industrial Innovation