

**Testimony of
George Andrews, Ph.D., Past-President of the
American Mathematical Society
On
FY 2012 Appropriations for the National Science Foundation
Before
The House Committee on Appropriations
Subcommittee on Commerce, Justice, Science, and Related Agencies
Congressman Frank R. Wolf, Chair
Congressman Chaka Fattah, Ranking Member**

Chairman Wolf, Ranking Member Fattah, and members of the committee, I am George Andrews, Past-President of the American Mathematical Society, an organization of over 30,000 professional mathematicians. I am here today to request an FY 2012 budget of \$7.767 billion for the National Science Foundation (NSF). This investment will allow the NSF to continue to support innovative and transformational scientific research that fuels the American economy, upholds national security, maintains our global competitiveness, and improves health and quality of life for millions of Americans. This budget level is consistent with the Administration's FY 2012 Budget Request and with the FY 2012 budget authorized in the bipartisan American COMPETES Act (P.L. 111-358), signed into law on January 4 of this year.

I would like to thank the Committee for its past support of NSF. This support has been very important for maintaining our Nation's scientific enterprise, which is critical for innovation and technological development.

I recognize that Congress faces the difficult and unenviable challenge of reducing the federal budget deficit. This task is made especially problematic in troubled economic times. I sympathize fully with how hard this is, and you have my admiration for your dedication to protecting our future. It is my hope that you will be able to wield the

budget cutting axe judiciously. The National Commission on Fiscal Responsibility and Reform made the point that even when it is necessary to make budget cuts, “at the same time we must invest in education, infrastructure, and high value research and development to help our economy grow, keep us globally competitive, and make it easier for businesses to create jobs.”

NSF is the perfect agency through which investments in education and high value research can be made. It is the only federal agency that supports research and education across all fields of science, engineering, and mathematics and at all educational levels. Research and education programs supported by NSF are fundamental for increasing and developing the knowledge base needed for pushing the frontiers of science, mathematics, and engineering disciplines, developing new fields of inquiry, and supporting technological innovation.

Society has benefitted from the many products, procedures, and methods resulting from NSF supported research – research performed over many years and not always predetermined toward specific applications. These benefits include well known innovations such as Google, magnetic resonance imaging (MRI), and bar code technology. Today, the NSF portfolio includes research that contributes to finding cures for certain types of cancer; aids the improvement and development of arterial stents and artificial heart valves; increases the possibility of fabricating 3-D computer memory chips; and promotes understanding of how atoms and molecules interact with surfaces thereby aiding the development of nanoscale devices.

NSF is important to the mathematical sciences, as over 45 percent of federal funding for mathematical sciences research comes from NSF, with the remainder of support split among three other agencies. NSF accounts for 65 percent of federal support for academic research in the mathematical sciences and it is the only agency that supports mathematics research broadly across all fields.

In FY 2010 over seventy percent of NSF's budget went to support research and education projects in colleges and universities in all fifty states. The Agency evaluated over 55,600 proposals through its merit review process, funding 13,000 of these proposals. This is a success rate of 23 percent and indicates how competitive it is to receive an NSF grant. If NSF had more funds, the Agency could support many more highly rated proposals. In fact, each year on average, over \$1.7 billion is requested for declined proposals that receive ratings at least as high as the average rating for all awarded proposals. These declined proposals have the potential to produce substantial research and education results.

The U.S. must maintain its leadership in high level research and education and NSF is an agency that contributes substantially to this endeavor. Even under tight budget constraints, it is important to make adequate yearly investments in NSF. Dependable funding will enable the scientific community to plan, develop infrastructure, create a manageable pipeline of graduate and postdoctoral students, and have feasible expectations. A predictable pattern of funding facilitates a continuous stream of high level research and researchers.

I ask that the Committee give strong consideration to providing an FY 2012 budget of \$7.767 billion for NSF. Thank you for this opportunity to speak to you and for your support of NSF.