

Remarks of

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"A Revolution in Opportunities: The Best of Times"
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I'm pleased to see such a great turnout of people interested in learning about NSF and NASA funding opportunities.

I want to congratulate the Quality Education for Minorities Network and Southeastern University for their foresight in recognizing that we help ourselves by supporting each other. Partnerships are a great way to stay connected in an era in which science and engineering are highly diversified across the planet.

As a nation, we are confronting the challenge of global competition by becoming both a high-stakes competitor and a valued collaborator.

As Charles Dickens, in his Tale of Two Cities, described the beginning of the French Revolution: *It was the best of times, it was the worst of times.*

Now we are in the midst of a new revolution; and it has the potential for being the best of times.

The nature of the global economy is changing. With the growth of information and networking capabilities, the traditional advantages of nations with raw materials, land, and labor are losing ground to regions with a strong knowledge base and willingness to collaborate.

This revolution has the potential to become a great equalizer by reducing disparities and lack of opportunities. Cyber-connections can create new avenues for those who are under-represented in science and engineering to begin to participate.

But saying so will not make it so. The authors of a book on "blogs" -- one of the recent trends -- reminds us that "Technology *can* be a force for liberalization, democratization, and social cohesion, but is not *inherently* so. People and policymakers have to work at making technology a positive force in our lives."

Anytime change occurs, there is a greater window for both opportunities and for unexpected obstacles. The same factors that make it easier for everyone to participate also make it harder to stay in the game. We need to employ tenacity, tools, and training to ensure our nation maintains a winning team.

The National Science Foundation is determined to keep the U.S. science and engineering enterprise apace with these challenges. We are a lead agency in implementing the American Competitiveness Initiative, which lays out concrete steps for strengthening the nation's competitive base while increasing our collaborative advantage.

NSF's role is to build up the research base that underlies the nation's innovation output, and to lead the reforms in U.S. science and engineering education needed to meet the demands of the global workplace. The Fiscal Year 2008 budget request announced two weeks ago is on track to help us accomplish those goals.

We are in constant dialogue with the science and engineering community to identify the people and approaches most likely to keep America "ahead of the pack." Our investments are selected through peer review, ensuring that knowledgeable people in each field participate in funding decisions.

The focus of NSF-funded research is the frontier of discovery and innovation -- the fundamental questions that percolate up from the community and refresh the ever-changing fountain of opportunity.

It is these frontier areas that will turn the tide of the revolution to our national and personal advantage.

The themes that are generating excitement in the NSF portfolio also remind us that a diversity of disciplines and talent will maximize our potential for discovery and innovation.

For example, NSF continues to increase its investment in the National Nanotechnology Initiative. Alongside the research into physical phenomena, NSF is emphasizing research into the social, behavioral, health, and environmental impacts of the nano-revolution. This will help ensure that, as nanotechnology penetrates our society, it will do so gently -- with widespread acceptance and attention to health and safety concerns.

The theme of living sustainably on Earth, and being good stewards of the planet, is reflected in numerous NSF investments. In the ocean sciences, we are planning long-term observatories that will help chart the oceans' cycles and the effects of a changing climate. In engineering, we are developing the fundamental processes needed to produce clean, sustainable energy, including alternatives such as hydrogen and bio-fuels.

In the plant world, we are on the verge of applying computational power to big unanswered questions, such as how we can preserve the diversity of species, and produce sustainable food supplies with less harm to the environment.

NSF is also committed to investments that advance the computing and communications frontiers. Cyberinfrastructure, especially, has created a loud buzz in the research and education communities.

Teams of researchers separated by geography and discipline are working together to observe the skies above the hemispheres, measure the impact of earthquakes, and study the fossils of distant regions. And in schools and museums across the nation, children are signing on to live video of penguins and pinnipeds in Antarctica and 3-D simulations of planet systems in nearby galaxies.

The International Polar Year, scheduled for 2007-2009, is an NSF priority, and an extraordinary opportunity to educate people about science and technology.

Our planet is changing more quickly than at any time in recorded history, and the polar regions are helping us realize and understand that change. Many of the global problems that beg for solutions are reflected in conditions in the Arctic and Antarctic -- the extent of sea ice, retreating glaciers, and shifting patterns in flora and fauna.

NSF investments in teaching and learning have as much potential to touch the future as those in chemistry, physics, and biology. We have made surprising discoveries about how people think, learn, and process information, and we are experimenting with teaching modules that accommodate individual learning styles.

A program called "Thinking Like a Scientist" trains high school students to apply the problem-solving methods of science to situations in their daily lives. The results show that under-represented youth may have competencies in science that are often left un-developed by traditional teaching methods.

Programs like these will move us across the ocean of ignorance between today's realities and tomorrow's vision.

We recognize, however, that we cannot drive the nation's economic engine without devoting equal attention to training and preparing our workforce. We know that diversity brings a creative synergy to bear on teaching, learning, invention, and innovation. And the cultural mosaic of the global economy demands that, if we are to compete beyond our borders, we must employ diversity within.

NSF commits substantial resources to helping research and education institutions eliminate barriers to recruiting and retaining minorities and women in science and engineering. You will hear more about these programs, and, I hope, be inspired to participate -- as a researcher, educator, mentor, or administrator.

You will also learn about the variety of ways in which you can participate in NSF-funded programs -- from submitting proposals, to sponsoring summer programs, to forming strategic partnerships. If you are learning about the opportunities for the first time, you will be hard-pressed to choose among them!

I invite each of you to join NSF and the other federal agencies in charging the goalpost of discovery, innovation, and education -- and pulling together the diversity of talent needed to earn the gold medal.

Through our individual tenacity and mutual support, we can turn this revolution in our favor and deliver to the United States and the citizens of the world ... the best of times.