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Congress of the United States
House of Representatives

May 3, 2005

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The Honorable George W. Bush
The President
The White House
Washington DC 20500

Dear Mr. President:

America today finds herself at a crossroads when it comes to leading the world in science and innovation. We can continue down the current path, as other nations continue to narrow the gap, or we can take bold, dramatic steps to ensure U.S. economic leadership in the 21st century and a rising standard of living for all Americans.

I know you share my concern about the future competitiveness of American industry and are committed to improving job opportunities for all Americans. However, our current levels of investment in innovative research and development are not enough to keep us at the forefront. Countries such as China and India are quickly gaining ground on the United States and few people realize it. This trend should be setting off alarm bells, especially as more high-tech products, and the high-tech jobs behind them, are located elsewhere.

The United States faces stiff competition in sheer volume because our population is a fraction of that of China and India. In 2000, Asian universities accounted for almost 1.2 million of the world's science and engineering degrees and European universities accounted for 850,000. North American universities accounted for only about 500,000. Additionally, according to the National Science Foundation, the United States has a smaller share of the worldwide total of science and engineering doctoral degrees awarded than either Asia or Europe. This is most alarming when you consider that since 1980, the number of science and engineering positions in the United States have grown at five times the rate of positions in the civilian workforce as a whole.

Foreign advances in basic science also now often rival or even exceed America's, and published research by Americans is lagging. *Physical Review*, a series of top physics journals, last year tracked a reversal in which American scientific papers, in two decades, dropped from the most published to minority status. In 2004 – the most recent year statistics are available – the total number of American papers published was just 29 percent, down from 61 percent in 1983.

America also is losing ground in the area of patents. The percentage of U.S. patents has been steadily declining as foreign nations, especially in Asia, have become more active and in some fields have seized the innovation lead. The U.S. share of its own industrial patents now stands at only 52 percent. Another measuring stick is number of Nobel prizes won. From the 1960s through the 1990s, American scientists dominated. Now, the rest of the world has caught up as our scientists only win about half of the Nobel prizes with the rest going to Britain, Japan,

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Russia, Germany, Sweden, Switzerland and New Zealand.

Federal research support serves two essential purposes. First, it supports the research required to fuel continued innovation and economic growth. Second, because much of it takes place at the nation's colleges and universities, it plays a critical role in training our next generation of scientists, engineers, mathematicians and others who will comprise the future scientific and technological workforce. I am concerned that with the current levels of federal investment in research and technology our country will fall victim to the fierce manpower competition we face from developing countries.

America has a proud history of rising to the occasion. We need to be mobilized as we were after the former Soviet Union launched Sputnik, when we made a commitment in the late 1950s to build our space program and greatly enhance our educational system in the name of national defense through the passage of the National Defense Education Act. Most recently we fulfilled the commitment to double the National Institutes of Health budget to jump-start work on medical research to help find cures to debilitating and fatal diseases.

Our nation must make a similar bold commitment to invest in the future of our country by tripling the innovation budget – federal basic research and development – over the next decade. We need to inspire young people to study math and science. As chairman of the Science-State-Justice-Commerce Appropriations subcommittee, I understand the difficult budget environment the nation is facing. But bold leadership from the White House will help establish this as a national priority in your next budget request to the Congress.

We must ensure for future generations that America continues to be the innovation leader of the world. Investing in research and development is a critical part of optimizing our nation for innovation, a process that will require strong leadership and involvement from government, industry, academia and labor. We must choose whether to innovate or abdicate.

I urge you to seize this opportunity to rally our nation to the cause of innovation and stand ready to assist you in this 21st century challenge. I hope you will work with Congress, with manufacturers and other producers and services providers, and with the academic and scientific communities to develop the necessary consensus to that will ensure America will remain the world's leader in innovation. The competitive and economic future of America is at stake.

Best wishes.

Sincerely,

Frank R. Wolf
Member of Congress

I thank you