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The Honorable Cory Gardner
U.S. Senate
354 Russell Senate Office Bldg
Washington, DC 20510

The Honorable Gary Peters
U.S. Senate
724 Hart Senate Office Bldg
Washington, DC 20510

Dear Senators Gardner and Peters:

On behalf of the American Physical Society (APS) and its more than 51,000 members, I want to thank you for requesting the scientific community's input as you work with the Committee on Commerce, Transportation and Science toward a bipartisan reauthorization of the America COMPETES Act.

It was not long ago that questioning America's dominance in global science, technology and innovation would have seemed unfathomable. But the 21st century landscape is remarkably different, and our primacy is now challenged by both European and Asian nations, most notably China. With technological innovation driving U.S. economic growth, our economic security – and therefore our national security – depends on our global competitiveness. And ensuring we remain globally competitive must be central to any COMPETES legislation.

To help achieve this, we urge the committee to consider the following provisions when drafting a COMPETES reauthorization:

- **Evaluate our large scientific facility capabilities.** State-of-the-art facilities are essential for performing discovery science and leading-edge research. To compete globally, we must have continued access to domestic world-class facilities. With our counterparts in Europe and Asia increasing their investment in large facilities, the U.S. must evaluate where it stands and where we are headed. Scientific breakthroughs will continue to occur, and U.S. leadership will depend on our commitment to science infrastructure.

Given current building plans and funding trajectories, the Congressional Research Service (CRS) should assess the current and near-term capabilities of large scientific facilities across all disciplines in the U.S. To help determine where we are excelling and/or falling behind, CRS should provide a comparison between facilities in the U.S., Europe, and Asia. The assessment should be completed and reported to Congress within 180 days.

Using the CRS assessment as a starting point, the National Academy of Sciences (NAS) should develop a roadmap for the future of U.S. large facilities that will allow the U.S. to maintain global competitiveness going forward.

- **Seek increased efficiency at the federal science agencies.** To remain competitive, the federal science agencies must sustain their efforts to maximize efficiency. Streamlining internal practices will allow agency staff to dedicate more time to effective administration. Eliminating duplicative regulations, oversight and mandates where possible will allow scientists to dedicate more time to research and development activities.

The Offices of the Inspector General (OIGs) should devote time and effort to improving agency efficiencies. In addition to continuing to seek out waste, fraud and abuse, OIGs should be rewarded for improving agency efficiencies. To ensure an appropriate level of activity, the financial cost and time to the research community in responding to OIG inquiries should be reported and acknowledged in OIG reports.

- **Ensure a competitive workforce for the future.** Remaining a leader in tomorrow's global economy depends on our ability to prepare today's students. Creating a STEM-educated workforce is vital to the U.S. remaining competitive. But the most recent results of the Programme for International Student Assessment (PISA, 2012) indicate socio-economic background has a profound impact on student STEM performance. Today, according to the National Center for Children in Poverty (NCCP), 22 percent of American children are living below the federal poverty level. No other Organization for Cooperation and Economic Development (OECD) nation comes remotely close to that level, as the 2012 United Nations Children's Fund (UNICEF) rankings show. Nearly one quarter of U.S. students are starting at an extraordinary disadvantage, and absent policy changes, they almost certainly will not develop the STEM skills necessary to be productive members of the 21st century American workforce. Such a consequence poses a serious risk for the nation's ability to compete in the global marketplace.

To help mitigate the impact of child poverty on STEM proficiency, NAS should examine the problem in depth and develop a set of proposals for addressing it. The study should be completed and findings reported to Congress within three years.

Additionally, as a member of the Task Force on American Innovation (TFAI), we strongly support its letter calling for strong and sustainable authorization levels for the science funding agencies. But robust and reliable funding is only part of the competitiveness equation. Assessing our current standing in the global competitiveness landscape, working toward agencies operating at peak efficiency, and ensuring we are creating a capable workforce for tomorrow are all essential to remaining competitive.

We greatly appreciate the opportunity to provide input, and we look forward to working with you and the committee to help ensure the U.S. remains a world leader in science, technology and innovation.

Sincerely,



Samuel H. Aronson