COMMITTEE ON
SCIENCE, SPACE, & TECHNOLOGY
Lamar Smith, Chairman

For Immediate Release
June 28, 2017

Media Contact: Kristina Baum
(202) 225-6371

Statement of Chairman Randy Weber (R-Texas)
Material Science: Building the Future

Chairman Weber: Today, we will have the opportunity to review federally funded research in materials science. I want to thank our panel of witnesses for joining us to share your important research, and provide the knowledge necessary to set priorities for basic science research.

Materials science is the discovery of new materials with novel structures, functions, and properties. In this area of science, researchers study the chemical, physical, atomic, and magnetic properties of an existing material, and use that knowledge to create new materials with ideal properties. By designing and creating new materials, researchers at our national labs and universities can solve complex engineering challenges and enable the development of new technologies.

Today, federal agencies ranging from the Department of Defense to the National Science Foundation and DOE are pursuing research in this area – because the value to the end user is clear. By tailor making materials for a specific use, scientists can create materials that increase efficiency and better store energy; reduce the environmental impacts and improve the safety of energy production technologies; develop stronger and more resilient artificial joints; improve high performance computing systems; and better protect our soldiers and athletes in the field. We are certainly living in a material world!

For example, Dr. Fred Higgs, who joins us from Rice University, will testify about how the development of materials such as diamond-like carbons and nanocrystalline diamond can lead to long-lasting, wear-resistant artificial knees and hips – that could last decades longer than today's technology.

At Ames Lab, led by Dr. Adam Schwartz who joins our panel today, the Department of Energy has cultivated decades of expertise in metallurgy and materials science. Researchers at Ames Lab pioneered the use of metallic powders in 3D printing. As Dr. Schwartz will testify, this expertise has enabled the production of high purity metal powders that can be used in the creation of industrial parts for military, biomedical, and aerospace applications.

I'm also particularly interested in Ames' ongoing early stage research in caloric materials for refrigeration and air conditioning – which if successful could save 20 to

25% of the generated electricity used for cooling, refrigeration, and air conditioning in the U.S.

Finally, just this week, a researcher at Argonne National Lab – which Dr. Tirrell is testifying on behalf of today – won the 2017 TechConnect National Innovation Award for developing a more efficient method to create graphene.

This one area of materials science research could improve technology for advanced touch screens, long-lasting batteries, transparent and conducting coatings for solar cells and next-generation oil-free solid lubricants.

Materials science also provides a perfect example of the broad economic benefit of investments in research infrastructure. The core capabilities and user facilities at our national labs are essential for the discovery and design of new materials. There is nowhere else in the world where an individual researcher or company could access a light source, high performance computing capabilities, and the specific expertise in materials synthesis that is available in our system of national labs.

You may hear today about how this vital area of research is at risk of being left behind because of budget cuts or changing priorities. But basic and early stage research in materials science is exactly what this Committee has always supported.

Discoveries in materials science require tools and expertise provided by national labs – and industry users are ready and waiting to commercialize technology based on this fundamental science.

Hearings like today's help remind us of the Science Committee's core focus – the basic research that provides the foundation for technology breakthroughs. Before we can ever see the deployment of a better battery, a stronger material for protective gear, or wear-resistant materials for medicine or energy production, we must invest in the science infrastructure that makes these discoveries possible.

###