

GRAND CHALLENGES FOR ENGINEERING



**Dr. Alton D.
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National Academy of
Engineering**

Thursday

March 2

4:00PM

Student Center

Ballrooms A&B

metallurgy.mines.edu

Rarely has an idea captured the imagination of professional practitioners, policymakers, educators, students, and the general public as rapidly and forcefully as the National Academy of Engineering's Grand Challenges for Engineering. Proposed in 2008 by a committee of 18 distinguished engineers, scientists, entrepreneurs, and visionaries, the Grand Challenges are 14 goals whose achievement will make it possible for people all around the world to thrive. The idea was embraced immediately and has been accelerating ever since.

The NAE Grand Challenges are having an especially powerful inspirational impact on education. The Grand Challenges Scholars Program (GCSP) has been adopted by dozens of colleges and universities across the country, and on March 25, 2015, President Obama announced a major initiative that is propelling it onto well over 100 more campuses—including the Colorado School of Mines.

There are also numerous activities centered on the Grand Challenges at the K–12 level. For example, a high school in North Carolina frames its entire curriculum on the NAE Grand Challenges, and another in the state of Washington has incorporated them across its classes. The principal of the Washington school said “they are the best educational motivator I have found in my career.” Other K–12 schools around the country are actively exploring these models.

There has also been a series of large international events focused on the NAE Grand Challenges. Global summits were held in London in 2013 and Beijing in 2015, and the next is planned for Washington, DC this July. Before these international events were launched, participating universities organized two national and six regional Grand Challenges summits to stimulate conversations on the importance of engineering and science in maintaining and enhancing our quality of life. A Business Week story about the first one summarizes the power of the NAE Grand Challenges: “Students may resist geek studies. But they’ll flock in for the opportunity to change the world.”

Alton D. Romig, Jr. is the Executive Officer of the National Academy of Engineering. Under Congressional charter, the Academy provides advice to the federal government, when requested, on matters of engineering and technology. As Executive Officer, Dr. Romig is the Chief Operating Officer responsible for the program, financial and membership operations of the Academy, reporting to the President. Prior to joining the Academy, he served as Vice President and General Manager of Lockheed Martin Aeronautics Company Advanced Development Programs, better known as the Skunk Works®. Dr. Romig spent the majority of his career at Sandia National Laboratories, operated by the Lockheed Martin Corporation. He joined Sandia as a Member of the Technical Staff in 1979 and moved through a succession of R&D management positions leading to appointment as Executive Vice President in 2005. He served as the Deputy Laboratories Director and Chief Operating Officer until 2010 when he transferred to the Skunk Works.

Dr. Romig is active on a number of Advisory Committees including those at Univ of Washington, MIT, Ohio State, Purdue, Georgia Tech the Colorado School of Mines and Sandia National Laboratories. He is also visiting Associate of Applied Physics and Materials Science at Cal Tech.

Dr. Romig graduated from Lehigh University in 1975 with a BS in Materials Science and Engineering. He received his MS and PhD in Materials Science and Engineering from Lehigh University in 1977 and 1979, respectively. Dr. Romig is a Fellow of TMS, IEEE, AIAA and AAAS, and Fellow and Honorary Member of ASM International. Dr. Romig was elected to the National Academy of Engineering in 2003 and the Council of Foreign Relations in 2008. He was awarded the ASM Silver Medal for Materials Research in 1988.