This year's recipient is John K. Shigley who embodied all that this award represents.

John was born on November 6, 1955, in Mobile, Alabama. He moved with his family to Brigham City, Utah in 1965. His education included time at Box Elder High School, where he was a member of the football team. He attended Weber State University receiving a B.S.: Chemistry; then on to the University of Utah receiving a Ph.D.: Chemicals and Fuels Engineering.

Following the completion of education at the University of Utah, he embarked on a career in the oil industry, working for Conoco, Inc., as a Research Engineer. Assignment and technical achievements involved the production of various grades of petroleum coke. His research led to the commercial production of a new grade of specialty coke. This early career development in the field of carbon chemistry would establish the groundwork that would lead to significant technical advancements for aerospace materials.

John made the move to the aerospace industry in the early 1980's, returning to Utah and joining the Morton Thiokol, Inc. as a Research Scientist. His early work focused on high temperature materials for solid rocket motor (SRM) nozzles, including carbon fiber and fabric, carbon-filled molding compounds, seals, adhesives, and novel applications. He was instrumental in the development of the high temperature carbon-based putty and silicone lubricant that replaced the obsolete legacy materials in the rebuild of the Minuteman Stage 1 nozzles under the USAF Propulsion Replacement Program.

The Integrated High Pay-off Rocket Propulsion Technology (IHPRPT) program provided John with an opportunity to work on materials technology for non-eroding SRM nozzle throats. He worked with a number of Department of Defense (DoD) and industry partners to advance the industry knowledge for Tungsten and Rhenium based materials used for both booster and tactical size SRMs. John was critical in driving design and demonstration of thin-walled Tungsten and Tungsten-Rhenium made from forged stock as well as vacuum plasma sprayed and electroformed throat inserts. In addition to his work on metallic throat material, John was heavily involved in developing and demonstrating non-eroding ceramic throat materials utilizing Tantalum Carbide, Hafnium Carbide and combinations of the two.

For the past 20 years, John's focus moved to developing affordable carbon-carbon (C-C) materials and oxidation barriers, with application to SRMs, liquid & turbine engines, hypersonic glide vehicles, and reentry vehicles. C-C technologies were successfully produced and successfully tested under representative static test and flight conditions. John's development of affordable 2D C-C heatshield led to the successful application by the Sandia National Lab team to the Advanced Hypersonic Weapon, which successful flew in 2011. This material system was adapted by the US Army for the Common Hypersonic Glide Body and has undergone additional successful ground and flight tests. The CHGB has transitioned to prototype production, with fielding planned for late government fiscal year 2023.

During his career John stayed at the forefront of carbon-carbon technology and is renowned as a technical expert within Northrop Grumman and the aerospace industry. John regularly attended and presented at multiple technical conferences every year, sharing his material's passion and desire to further develop and implement carbon-carbon components. He attended NSMMS since inception. John's work has been critical to the continued safety and defense of our country, as well as providing new technologies for continued space exploration; allowing components to go further, faster, and survive more extreme environments than ever before. John was granted eight (8) patents and had

numerous publications on nozzle material and process related inventions. He was a technical leader and friend and is greatly missed by the aerospace industry.