



Mechanical Engineering  
Academy of Distinguished Alumni

## **Gary Polansky, Ph.D.**

*Distinguished Mechanical Engineer, 2017*

BSME, The University of Texas at Austin, 1978  
MSME, The University of Texas at Austin, 1980  
Ph.D., ME, The University of Texas at Austin, 1983

*Senior Scientist*  
Sandia National Laboratories

Gary Polansky joined Sandia National Laboratories (Sandia) in 1983 after finishing his Ph.D. at The University of Texas at Austin. In his early career, he pioneered the development of aerodynamic and aerothermodynamic analysis tools that became the standard at the laboratory for maneuvering hypersonic systems. These tools enabled rapid analysis of complex systems and served a critical role in many successful flight tests. After nearly 30 years, these tools remain in routine use at the laboratory.

In 1990 he joined an effort to develop high performance nuclear thermal propulsion for the Strategic Defense Initiative Organization. This team performed several successful reactor experiments showing the feasibility of an advanced nuclear fuel form. As SDIO priorities shifted, Gary led efforts to engineer reliable systems for manned space flight in support of the NASA Space Exploration Initiative. He also led a combined Department of Energy/Air Force program to develop hybrid nuclear power and propulsion systems for a new generation of satellites.

The Air Force also selected Gary to lead the system integration effort for the Topaz International Program. This program was one of the first large scale scientific and technical collaborations between Russia and the United States, employing more than 300 Russian scientists and engineers at its peak. Although the program's goal of flying a Russian space nuclear reactor power system was never achieved, it did establish a basis for international cooperation and opened a number of Russian aerospace facilities to western collaborators. Indeed, personnel from the Topaz International Program remain engaged in the International Space Station program today.

Throughout his career, Gary has sustained his involvement in Aerospace Nuclear Safety. He advised the Interagency Nuclear Safety Review Panel (INSRP) in the launches of Pluto New Horizons (PNH) and the Mars Science Laboratory (MSL). The PNH launch was particularly challenging from a nuclear safety perspective as legacy (aged) nuclear fuel pellets had to be utilized due to a fuel shortage. Gary led the efforts to recover the historical data on fuel aging, analyze the data in the context of the PNH mission, and develop models to characterize the uncertainty associated with aged fuel. The work was critical to the INSRP independent safety assessment and the presidential decision to launch PNH. He was recognized with a NASA achievement award for this effort.

For the last decade, Dr. Polansky has provided Sandia with technical and management leadership of hypersonic flight systems for NASA, DARPA, Air Force, Navy, and Army applications. This effort culminated in the Advanced Hypersonic Weapon flight test on November 11, 2001. He was the project manager over the development of both the booster and the hypersonic glide body for this groundbreaking test. The test was the first successful long range boost-glide hypersonic flight and achieved all test objectives. The test team was recognized with a Lockheed Martin NOVA Award, and Gary was recognized by the Precision Strike Technical Association with Richard H. Johnson Technical Achievement Award for this accomplishment.

Currently, Dr. Polansky is senior scientist with broad technical responsibilities across hypersonic flight systems, responsive space launch systems, and related technologies at Sandia.