



# PHYSICS COLLOQUIUM: The Ongoing Adventures of an Industrial Physicist



## Jonathan Arenberg

Chief Mission Architect, Science and Robotic Exploration  
Northrop Grumman

### About The Speaker:

Dr. Jonathan (Jon) Arenberg leads engineering and development of Science and Robotic exploration missions for Civil and Commercial Space at Northrop Grumman.

In his current role, Dr. Arenberg leads engineering and concept development for future science missions for Northrop Grumman. This role included developing, planning, and conducting strategic analyses for space science missions. He was responsible for directing Northrop's studies of potential successor missions to Webb as part of the recent astrophysics decadal review.

In his previous roles, Arenberg led the development of optical, space and laser systems as the lead engineer. Arenberg has over 30 years of experience working on astronomical programs such as the Chandra X-ray Observatory, development of the Starshade and NASA's James Webb Space Telescope. He held several positions on Webb, system design leader, systems engineering manager and finally chief engineer. In addition to his work on astronomical systems, he has contributed to major high-energy and tactical laser systems, laser component engineering, metrology, optical inspection and technology development projects he is a member of national and international standards committees related to lasers and electro-optics. Prior to joining TRW, now Northrop Grumman, in 1989. Dr. Arenberg worked at Hughes Aircraft Company, starting as an intern in 1982. He completed graduate school as a Hughes Fellow, while working. His work at Hughes was a variety of roles on major tactical laser and sensor systems.

Dr. Arenberg has a Bachelor of Science in physics, a Master of Science and PhD in engineering all from the University of California, Los Angeles (UCLA). As a committed member of the scientific community, Dr. Arenberg is a long serving California State Science Fair Judge, frequent public speaker, colloquium and guest lecturer, . Additionally, Dr. Arenberg is a referee for several journals and has served as guest editor for special journal issues on laser induced damage in materials and the Starshade. He is a Fellow of the international optics and photonics society, SPIE, for his contribution to astronomy and lasers and a member of numerous scientific and engineering societies. He is the author of over 210 conference presentations, papers and book chapters and holds 15 European and U.S. patents in a wide variety of areas of technology. Dr. Arenberg is also the co-author of a recent book on systems engineering for astronomy from SPIE press. In 2020 Jon was given the Professional Achievement Award from the UCLA Henry Samueli School of Engineering and Applied Science. In 2022 he was the speaker at the UCLA Engineering commencement.

### Abstract:

Many recipients of physics degrees do not have careers in realm of academia. In this talk we will explore the life of physicist in industry through the lens of my career. We will talk about what does a physicist do on projects such as the Chandra X-ray Observatory, the James Webb Space Telescope and the next Great Observatory. I will provide examples of design challenges solved through the application of basic physics principles and problem-solving approaches. We will explore the kinds of positions and projects in industry that a physicist is most suited for and the pleasures and opportunities that an industrial can offer.

### Date:

2/17/2023

### Time:

10:30 AM - 11:50 AM

### Location:

Granite Pass 135



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