



FREDERICK A. SLANE
CONSULTANT

frederick.slane@gmail.com

Mr. Frederick Slane is a Consultant for Engineering Systems Inc. (ESI). Mr. Slane is a leader in the development and proliferation of space standards in the U.S. and abroad. His current work is leading the development of a reference space technical architecture for the global space industry and NASA. He served as the Chair of the Committee on Standards for Space Plug-and-Play for the American Institute of Aeronautics and Astronautics. Internationally, he is the U.S. Head of Delegation to the Subcommittee for Space Systems and Operations. He was the Project Lead for Standards on Spacecraft Initialization for Lunar Simulants and CubeSats. He was also an invited member and subsequently a subgroup lead for the National Research Office Launch Interaction Workshop. Mr. Slane retired from the U.S. Air Force after a career that concluded with an assignment as the Chief Architect and Chief Engineer for the ORS Office of Air Force Space Command. In 2003, Mr. Slane founded and currently serves as the Executive Director of the Space Infrastructure Foundation. He has been the Project Lead on four ISO and AIAA space standards, has published over 15 papers and reports, and has presented numerous classes and presentations on space architecture and standardization. Mr. Slane is an Associate Fellow of the American Institute of Aeronautics and Astronautics.

Areas of Specialization

Space Standards
Satellite Operations
Space Systems Architecture

Education

M.B.A., International Business, University of Colorado, 2008
M.S., Physics (Astrophysics), University of New Mexico, 1993
B.S., Aeronautical Engineering, Air Force Institute of Technology, 1983
B.A., Physics and Mathematics, Wilamette University, 1980

November 2017

Professional Affiliations/Honors

American Institute of Aeronautics and Astronautics (AIAA)

Associate Fellow

Chairman, Committee on Standards for Space Plug and Play Architecture, 2004 - present

International Organization for Standardization (ISO)

U.S. Head of Delegation, Subcommittee for Space Systems and Operations (ISO TC20/SC14)

Project Lead, Standards on Spacecraft Initialization, Lunar Simulants and CubeSats

National Level Studies

Subcommittee member for Energy and Interactions at the 1991 Near Earth Object workshop at
Los Alamos National Labs

NRO Launch Interaction Workshop: invited member 2001, subgroup lead 2003

Certifications

Defense Acquisition University, Acquisition Professional Development Program Test and
Evaluation, Level III

Scientific and Technology Management, Level III

Program Management, Level II

Positions Held

Space Infrastructure Foundation, Inc.

Founder, 2003 - present

Executive Director, 2003 – present

Slane Consulting

Consultant, 2008 - present

Technology Service Corporation

Tactical Space Systems Architect, 2009 – 2012

Space Environment Technologies, Infrastructure and Standards Division

Director and Chief Engineer, 2004 – 2009

Ball Aerospace & Technologies Corporation

Principal Systems Engineer, 2001 - 2003

US Space Command

Lead Operations Engineer, 1996 – 2001

AFOTEC

Test Director, 1993 - 1996

Head of Division, 1993 – 1996

Operational Test Manager, 1987 - 1988

Near Earth Objects

Subcommittee member for Energy and Interactions, 1991 – 1992

AF Research Laboratory

Chief Engineer and Program Manager for Space Communications, 1991 – 1992

Space Based Radar Program Manager, 1989 – 1991

AF Weapons Lab

Particle Beam Theory Section Lead, 1988 – 1989

6595th Shuttle Test Group

STS Test Director/Test Engineer, 1983 – 1987

Quantic Ind., Inc.

Testing Technician, 1980 – 1981

US Air Force Active Duty, 1981 – 2001

USAF Reserve

Chief Architect. 2003 - 2009

Chief Engineer, 2003 - 2009

Publications/Presentations

“Using Standards as a Gateway to Innovation”, **Slane, F.A.**, AIAA Rocky Mountain Section Annual Technical Symposium, Denver, Colorado, October 2012

“Use of Model-Driven Architectures to Increase Responsiveness and Reduce Cost” **Slane, F.A.**, Dewey, R.G., Cook, D.G., Reinventing Space 2011 Conference, May 2011

“Space Mission Engineering: The New SMAD”, **Slane, F.A.**, Multiple Contributing Authors, Microsocm Press, 2011

“Integrating a Modular Excavator as a Smart Tool into the Space Exploration Infrastructure using Small Satellite Systems Protocols”, Rodriguez, G.A. and **Slane, F.A.**, Small Satellite Conference, August 2008

“Development of a Useful Standard for Lunar Simulants”, **Slane, F.A.** and D. L. Rickman, D.L., COSPAR, Montreal, Canada, July 2008

“Extension of A Layered Architecture for Mitigation of Dust for Manned and Robotic Space Exploration” **Slane, F.A.** and Rodriguez, G.A., Space Resources Roundtable, October 2007

“Space Plug and Play Avionics Standards: Progress, Problems and a View of the Future” **Slane, F.A.**, Hooke, A.J., InfoTech, May 2007

- “Improving the Process of Coupled Loads Analysis” Sarafin, T., Doukas, P., Majed, A., Henkel, E.,
Slane, F.A., 26th NRO/AIAA Space Launch Integration Forum, September 2006
- “A Standard for the Space Environment at the Moon” **Slane, F.A.**, Spitale, G.C., and Tobiska, W.K.,
COSPAR, Beijing, China, July 2006
- “A Layered Architecture for Mitigation of Dust for Manned and Robotic Space Exploration” **Slane, F.A.**
and Rodriguez, G.A., Earth & Space 2006: Engineering, Construction, And Operations In
Challenging Environments Proceedings, March 2006
- “Technical Standards for the Space Industry”, **Slane, F.A.**, 2002 Conference on Core Technologies for
Space, Colorado Springs, Colorado, November 2002
- “The Importance of Commercial Space Standards”, **Slane, F.A.**, Aerospace America, May 2011
- “Lunar Dust: Implications for Astronomical Observatories” Johnson, S.W., Chua, K.M., Burns, J.O.,
Slane, F.A., Johnson, S.W., Chua, K.M., Burns, J.O., **Slane, F.A.**, SPIE Annual Meeting,
Orlando, Florida, April 1991
- “Resolution of Thermal and Synchrotron Emission Regions of NGC 3504”
Dixon, D.S., Duric, N., **Slane, F.A.**, American Astronomical Society, 176th Meeting, 1990
- “Astrophysical Constraints on the Distribution and Origin of Cosmic Rays in 4
Nearby Spiral Galaxies”, Proc. Duric, N., **Slane, F.A.**, 21st Intl. Cosmic Ray Conf., 4, 76.,
Adelaide, Australia, January 1990
- “Dust Levitation on the Moon” **Slane, F.A.**, Duric, N., Burns, J.O., Space 94 Proceedings, Vol. 2
- “Engineering Implications of Levitating Lunar Dust” **Slane, F.A.**, Space 94 Proceedings, Vol. 2
- “Engineering Implications of Levitating Lunar Dust”, **Slane, F.A.**, Poster Presentation, Space 92,
Albuquerque, New Mexico

Standards

- AIAA S – 133 (2013), Space Plug and Play Architecture (Ten parts)
An International Strategic Plan for Space Standards Development in ISO (2012)
ISO 10784 (2011), Spacecraft Initialization and Commissioning (Three parts)
ISO 10788 (2014), Lunar Simulants
ISO 17770 (est 2014) CubeSats

Abstracts

- Newsom, H.E., **Slane, F.A.**, Pressure-Temperature Regimes and Core Formation in the Accreting
Earth, American Geophysical Union Monograph Series, Jeffreys Symposium on Interrelations
Between Geophysical Structures and Processes

Classes taught

- “General Architecture and Standards”, **Slane, F.A.**, Kearney, M., Krosley, R., Professional Development Course, 2015
- “Architecture and Standards for Small Space Systems”, **Slane, F.A.**, AIAA Rocky Mountain Section Professional Development Course, December 2014
- “Enterprise/Systems Architecture for Space Systems: A Technical Course”, extended studies”, **Slane, F.A.** with the University of Colorado at Colorado Springs, Center for Space Studies and the College of Engineering and Applied Science, July 2011
- “The ABCs of Standards”, **Slane, F.A.**, the AIAA, 2007, 2009

Reports

- “ISO Technical Committee for Space”, Multiple Contributing Authors, “Business Environment” and “Representation on the Technical Committee”, January 2005
- “AIAA R-099-2003: Space Launch Integration Recommended Practices”, Multiple Contributing Authors
- “AIAA R-099-2001: Recommended Practice: Space Launch Integration”, Croon, Capt. G.S., **Slane, Capt. F.A.**, Multiple Contributing Authors, “Handbook of Neutral Particle Beam Discrimination: Threats and Targets(U)”, WL-TR-90-25, August 1991