Engineering Week Event

Please join us for an:
American Institute of Aeronautics and Astronautics
Distinguished Lecture

"Interplanetary Cruising With Earth-To-Mars Transit Examples"

7:00 p.m. to 8:30 p.m.

Tuesday, February 24, 2015

Weber State University, Room 121, Lind Lecture Hall

WEBER STATE UNIVERSITY Campus Map

Distinguished Lecturer: DANIEL R. ADAMO

Biography: Mr. Adamo is an astrodynamics consultant concentrating on space mission trajectory design and operations and space trajectory design/simulation software development. He recently worked with NASA on several projects that included various trajectory designs. Previously Mr. Adamo worked for the United Space Alliance as a primary trajectory expert, and served as a "front room" flight controller for 60 Space Shuttle missions. He regularly participated in trajectory design, software tool, flight rule, and operations concept development. He began his career at the Perkin-Elmer Corporation where he developed and operated proof-of-concept software for computer-controlled polishing of optical elements. He has degrees in Physical Sciences and Optical Engineering from the University of Houston and the University of Rochester. Mr. Adamo is a Senior Member of AIAA and is the author of numerous publications, most recently "A Class of Selenocentric Retrograde Orbits With Innovative Applications To Human Lunar Operations." He is the recipient of numerous awards, including 14 NASA Group Achievement Awards.

Presentation Abstract: "Interplanetary Cruising With Earth-To-Mars Transit Examples"

This 1.5-hour lecture introduces the fundamentals of orbit motion and applies them to designing a realistic Mars mission by solving the *Lambert boundary value problem* for Sun-centered trajectories. The *patched conic* technique is then applied to a Sun-centered transit from Earth to Mars, producing geometric constraints on Earth departure as an example. Summarizing this process, the fundamental design trade between minimal time-of-flight and minimal propulsion is made apparent for missions to the Moon, near-Earth asteroids, and Mars. By listening to this lecture, anyone with an understanding of high school physics will become familiar with the challenges of interplanetary spaceflight, particularly when human factors are considered.