



Mechanical and Aeronautical Engineering Department  
University of California Davis, California 95616-5294

<http://mae.ucdavis.edu/research/spaceEd/>

## 2006-2007 Monthly Seminar Series on Space Research

19 October, 16 November, 18 January, 15 February, 19 April, 17 May

3<sup>rd</sup> Thursdays 4:00-5:00 pm

# System Engineering Trades – Large SRM Boost Propulsion for Space Launch Applications

**Ed Casillas**  
Aerojet, Sacramento

Date: 17 May 2007 Thursday

Time: 4:10-5:00 pm

Location: 1062 Bainer

*Refreshments will be provided at 4:00 p.m.*

### ABSTRACT

*Hosted by: Professor Nesrin Sarigul-Klijn*

A review of existing world-wide large space solid rocket boosters leads into an appreciation of historical trends, significant differences, and improvements that have resulted from technology advancements. Recognizing the wide range of potential technical design solutions, emphasis is made on the need and discipline of a systems-level, concurrent engineering systems trade analysis as a means to evaluate multiple design candidates and identify the correct design approach for a given application. A description will be provided of recent and related Aerojet system trade methods and tools that couples corresponding trade evaluations of performance, cost, risk, as well as other key drivers, and which is integrated through a quality function deployment matrix that sift through multiple design candidates supports selection of a preferred design approach.

### ABOUT THE SPEAKER

**Ed Casillas** is currently a Technical Principal in System Analysis group at Aerojet. He has over twenty years of experience in lead, support, and managing capacity of systems analysis and preliminary SRM propulsion design and trade studies. He participated in various projects including Large Launch Vehicles (Shuttle, Titan IVA-IVB, ASRM, Delta II-III, Atlas II-III); Orbital Vehicles (Inertial Upper Stage, Various Apogee and Perigee Motors); Small Launch Vehicles (Agena, Pegasus, Multiple Ground / Air Launched Vehicle); Strategic Missiles (Minuteman III, SICBM, Trident II, LBSD, SLIRBM); and Missile Defense (THAAD, Standard Missile 3, GMD, Corp Sam). He received his BS degree in Mechanical Engineering from SJSU and continued his graduate studies at the same institution. He has two patents one is in dual action solid hybrid rocket, and the other is in 1.5 stage symbiotic hybrid vehicle.

### *For more information about*

**SpaceED (Space Engineering Research and Graduate Program) or the seminars please contact Professor Nesrin Sarigul-Klijn at (530)-752-0682 or [nsarigulklijn@ucdavis.edu](mailto:nsarigulklijn@ucdavis.edu)**

Members of the campus community and visitors from the region are welcome to attend the seminar series.

Sign-in is required at the event. SpaceED seminar will replace MAE297 seminar on 3<sup>rd</sup> Thursdays.

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