

AEROSPACE & MECHANICAL ENGINEERING



**2011 COLLOQUIUM 2012
SEMINARS ARE OPEN TO THE PUBLIC**

**INFORMAL COFFEE PERIOD BEFORE THE SEMINAR IN ROOM 365 FITZPATRICK HALL
UNIVERSITY OF NOTRE DAME, NOTRE DAME, INDIANA 46556**

SPEAKER: Dr. David M. Schuster

NASA Technical Fellow for Aerosciences
NASA Engineering and Safety Center
NASA Langley Research Center
Hampton, Virginia

**TOPIC: DESIGN, DEVELOPMENT AND FLIGHT TEST
OF THE MAX LAUNCH ABORT SYSTEM**

DATE: Tuesday, October 11, 2011

TIME: 3:30 p.m.

PLACE: 138 DeBartolo Hall



ABSTRACT

With the flight of the Max Launch Abort System (MLAS) on July 8, 2009 the NASA Engineering and Safety Center completed an 18-month design and development effort to demonstrate an alternative launch abort vehicle concept for NASA's Orion spacecraft. The MLAS Project was initiated to provide risk reduction for the current Orion launch abort system. The project's name was derived from the legendary NASA designer, engineer and project manager Maxime Faget, not for his well-known role in development of the Apollo tower Launch Escape System, but rather for his vision and project management skills that allowed a pad-abort test of the system to be developed and flight tested in about a year's time frame. The MLAS Team started with a simple hand-drawn concept for a launch abort vehicle, performed conceptual designs and trade studies, selected off-the-shelf rocket motors, parachutes, and electronic components and built a full-scale flight vehicle that successfully executed a simulated Pad Abort from Wallops Island on the Eastern Shore of Virginia. The flight lasted less than 90 seconds, involved four individual separation events (12 pyrotechnic firings), deployed 9 parachutes, and safely deposited a flight scaled Orion crew module simulator in the Atlantic Ocean. This presentation will summarize the MLAS Project, its objectives, the vehicle fabrication and flight test, and the data acquired from the flight. Design, development, and fabrication approaches and strategies will be presented for the vehicles major subsystems and some of the more interesting vehicle integration challenges will be outlined. The presentation will also discuss the unique aspects of the MLAS team that provided hands-on flight learning and mentoring experience for some of NASA's younger and less-experienced engineers.

NOTE: If you are interested in meeting individually with Dr. Schuster, please contact Evelyn at 631-5431