



AIAA/IEEE(AES) Joint Section Meeting

Thursday, January 8, 2015

Joe Nieberding
President, Aerospace Engineering Associates

“Critical Need for Testing New Space Systems” (Have we lost our testing heritage?)

Location: **Bethpage Public Library**
47 Powell Avenue
Bethpage, NY 11714

Time: **6:00 PM Social Time**
6:30 PM Pizza
7:00 PM Presentation

Cost for Pizza: **\$5, Members and Guests**
Free, for Students

RESERVATIONS REQUESTED
RSVP BY January 7, 2014
to: David Paris at
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or (516) 458-8593

The purpose of this presentation is to renew awareness of the critical need to rigorously test new space systems before flight, and to counter the trend to reduce such testing. There is a real concern that we have lost our testing heritage, our culture of testing. Examples of comprehensive Centaur, Space Shuttle Main Engine, and Apollo testing are discussed. The role of testing “screens” in the overall design verification process is also discussed, as well as why these screens are frequently ineffective. Several factors contribute to ineffective screens. Among them are tests that were never incorporated into the test plan, tests that were improperly performed, or flawed simulation in lieu of testing. Three actual NASA historic flight failures are discussed, and why the testing was ineffective in each case. Mr. Nieberding concludes that programs that adopt a minimalist approach to testing are betting on the ability of the engineering community to foresee all aspects of system performance under all conditions. But history has shown that that is a very risky bet!

After earning a B.S in physics and an M.S. in Engineering Science, Mr. Nieberding has acquired over 48 years of management and technical experience in the aerospace industry. He is a widely recognized expert in launch vehicles and advanced transportation architecture planning for space missions. He was a launch team member on over 65 NASA Atlas/Centaur and Titan/Centaur launches at Kennedy Space Center. He led and participated in many independent program review teams for NASA Headquarters. While at NASA, the Advanced Space Analysis Office under his direction led all exploration advanced concept studies for the Glenn Research Center, including transportation, propulsion, power, and communications systems for many advanced NASA mission applications. Since retirement in 2000, he has held numerous consulting positions for NASA and other government agencies. In addition, Mr. Nieberding is co-founder and President of Aerospace Engineering Associates.

Directions: The library is west of Route 135 in Bethpage. Take Route 135 to Exit 8, then West on Powell Ave. for about 0.25 miles. The library is on the south side of the street. Park across Powell Ave., opposite the library.