

Guest Lecture Announcement

Thursday
Dec 11, 2008
5:30 P.M.

Engineering
Bldg
Room 326



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A Brief Overview of Aerospace Random Vibration Measurements and Testing

Gordon Claycomb
Retired Lockheed Martin Technical Fellow-
Structural Dynamics

The talk will give a brief overview of vibration testing in aerospace industry with emphasis on the following:

- A 50 Year history of velocity sensor and accelerometer analog data frequency and amplitude analysis; transition to digital data acquisition and signal processing (FFT and probability density analyses).
- How to get "good" data in modern times. Sample rate(bps) required for recording accurate broad frequency bandwidth, random vibration data. (metal fatigue, damping determinations and the Nyquist frequency dilemma)
- Random vibration data reduction errors using FFT analysis.(max.rms,"windowing", PSD's).
- Time domain data selection (sample lengths) effects on PSD's (Normal/Gaussian phenomena).
- Lab vibration testing using servo-controlled acceleration input levels vs impedance (F/V) force limiting controlled inputs; qualification testing; and reliability testing (environmental stress screening, ESS)