

MECHANICAL AND AEROSPACE ENGINEERING DEPARTMENT SEMINAR

Tuesday, March 21, 4:30 PM, Mann 307

Speaker: Victor Giurgiutiu

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TITLE: Recent Advances in Structural Health Monitoring with Piezoelectric Wafer Active Sensors

Piezoelectric wafer active sensors (PWAS) are inexpensive, non-intrusive un-obtrusive devices that can be surface-mounted on existing structures, or inserted in a new composite structure. The PWAS can be used in both active and passive modes. In active mode, the PWAS generate Lamb waves that can exist as either traveling waves or standing waves. As traveling waves, PWAS-generated Lamb waves can be used with the pitch-catch, pulse-echo, or phased-array methods that allow far-field and some medium-field damage detection. As standing waves, PWAS-generated Lamb waves can be used in conjunction with the electro-mechanical (E/M) impedance technique that allows near-field and some medium-field damage detection. The presentation will cover recent theoretical and experimental results obtained with PWAS-based structural health monitoring in the Laboratory for Adaptive Materials and Smart Structures (<http://www.me.sc.edu/research/lamss/>), University of South Carolina.