Date: **October 7th, 2005**

Time: **11:00 AM**

Location: **Maryland Hall 110**

Speaker: **Dr. Genevieve Comte-Bellot**
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Title: **"Special Features of the Constant Voltage Anemometer"**

Abstract

Hot-Wire Anemometry (HWA) is almost a century old. Even with recent developments of Laser Doppler Velocimetry (LDV) and Particle Image Velocimetry (PIV), HWA remains popular because of the advantages it offers over the others. Among the advantages, the HWA can be used to measure mass flux of the fluid with its ability to measure simultaneously fluid velocity and temperature fluctuations and also wall shear stresses. Further, HWA enables measurements in real time. Very small probe sizes are possible as well as an array of sensors for simultaneous measurements at different locations. Three types of HWA are available: Constant Temperature Anemometer (CTA), Constant Current Anemometer (CCA) and Constant Voltage Anemometer (CVA). Features of these anemometers will be presented in the seminar with guidelines regarding the choice. The CVA is a recent system and offers several features beneficial for applications. The CVA offers flexibility in operation without any need for critical balancing adjustments, stable because of its independence from cable capacitance effects, large bandwidth which is also constant over wide range of operating conditions of the hot-wire, accurate post processing capability of data with in situ measured hot-wire thermal lag and overheat, automated for several applications even for flight tests with remote operation control features. Archival results from several tests will be presented.