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This webinar will be recorded and made available on the CNDE website



Recent Advances in Electrical Impedance Tomography for Embedded Sensing

Presented by:

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Abstract:

Electrical impedance tomography (EIT) is a method of mapping the conductivity distribution of a domain. For decades it has been considered a potential in-situ nondestructive evaluation technique for characterization of conductivity changes in aerospace composites. Yet, several challenges must be addressed before this technique can be transitioned from the laboratory to meaningful practice. In this talk, we will discuss recent advances to the practice of EIT in polymer-matrix composite materials, including the design of an inexpensive multiplexer for bench-top experiments; development of a mixed prior for regularization and its ability to suppress spurious signals; and initial steps towards the development of a deep learning-based EIT detection algorithm. We will conclude the discussion with a look at some of the challenges that remain for transition to aerospace vehicles.

Speaker:

Dr. John Wertz is an Aerospace Research Engineer in the Material State Awareness Branch of the Materials and Manufacturing Directorate at AFRL. He received his BS in Aerospace Engineering from The University of Arizona in 2008, followed by MS and PhD degrees in Aeronautical and Astronautical Engineering from The Ohio State University in 2010 and 2013, respectively. His current work within AFRL focuses on fusion of data from multi-modal NDE sensors and integrated sensing for damage detection in composite structures.

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