

Bridge and Structure Seminar

Title: Recent Progress on Realizing Large-scale Nano-engineered Composite Structures

Speaker: Professor Brian L. Wardle,
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<http://web.mit.edu/aeroastro/www/people/wardle/index.html>

Date: July 13(Friday) 945am –1045am

Place: No.1 Eng. Building Seminar B (Univ. of Tokyo Hongo Campus)

Abstract Progress on realizing nano-engineered advanced composite laminates will be summarized. An overview of processes for manufacturing large-scale advanced composites using continuous, high-quality, vertically aligned carbon nanotubes (VACNTs) in two different architectures will be presented, including characteristics of the in-house VACNT growth process. Mechanical and multifunctional testing results for both nanocomposites (VACNTs + polymers) and nano-engineered composite laminates (VACNTs + polymers + carbon fibers or ceramic cloth) will be discussed. Challenges, and some solutions, to realizing large-scale advanced composite structures with properties enhanced and/or tailored using nano-scale constituents will be emphasized throughout.



Professor Brian L. Wardle Prof. Wardle is Boeing Assistant Professor of Aeronautics and Astronautics at MIT. He received a B.S. in Aerospace Engineering from Penn State University in 1992 and completed S.M. and Ph.D. work at MIT in the Dept. of Aeronautics and Astronautics in 1995 and 1998, respectively. Upon graduation from MIT, Prof. Wardle pursued business interests with the management-consulting firm McKinsey & Company where he led senior clients of Fortune 500 companies through strategic and operational initiative. Prof. Wardle has significant (multi-million dollar) program and project management experience, including work in the areas of technology and management for commercial and academic enterprises. In 2003, Prof. Wardle joined the faculty of MIT where he is pursuing research in nano-engineered composite architectures, power MEMS devices, structural health monitoring technologies, and durability and damage resistance/tolerance of advanced composite systems. Prof. Wardle is currently the materials/structures lead on MIT's Microchemical Power MURI team developing MEMS-scale solid oxide fuel cells. Prof. Wardle is the Director of MIT's Nano-Engineered Composite aerospace Structures (NECST) Consortium, a principal member of the Technology Laboratory for Advanced Materials and Structures (TELAMS), an affiliate of the Microsystems Technology Laboratory (MTL), and a member of the [MEMS@MIT](#) community. He is active in the global advanced composites community including the AIAA SDM and ICCM conferences.

Everyone is welcome to the seminar

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