



Chair's Distinguished Industry Lectures and Inaugural BARC Seminar Series

Industrializing Composites Materials

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ABSTRACT: Advanced composite materials have their roots in aerospace applications, and represent one of the preferred engineering materials for structural applications where high strength-to-weight and stiffness-to-weight ratios are required. Various material systems have been developed to meet specific applications and service environments, and their performance benefits have been realized. Numerous manufacturing processes have been developed as well, offering designers options for building the material/component. Today we see many aerospace systems using composites, and a growing market for diverse aerospace systems. As new aerospace vehicles and frontiers grow, the application of advancements in the manufacturing of composites will have the opportunity to evolve to enable their industrialization for an exciting future.



SPEAKER BIO: Tia Benson Tolle graduated from the University of Washington with a Bachelor of Science degree in Mechanical Engineering. She also earned her Master of Science and Doctorate of Philosophy degrees in Materials Science and Engineering from the University of Dayton. In addition she holds a Masters Certificate in Leadership and Executive Development from the University of Dayton and completed the Air Force Senior Leadership Development Course and Air War College Senior Leader Course from the Air University, Maxwell Air Force Base.

Tia joined NASA's Johnson Space Center 1983 as a co-op student and in 1986 as a Flight Crew Instructor in the Space Shuttle Flight Training Division, Mission Operations Directorate.

In 1989, she joined the Flight Dynamics Laboratory, Wright Laboratory, as a Composite Structures Program Manager in the Advanced Composites Advanced Development Program Office.

Tia joined the Materials and Manufacturing Directorate, Air Force Research Laboratory, in 1992. She held several positions, including Chief of the Structural Materials Branch and lead of the Composites Core Technology Area. During this period she was responsible for materials for satellites, airframes, engines and launch vehicles spanning basic research to advanced development and transition. In 2007, she was assigned as the Technology Director of the Nonmetallic Materials Division. She was also USAF Deputy to the DoD Reliance Community of Interest for Materials and Processes, coordinating research interests across Defense Science and Technology.

In 2012, Tia joined Boeing as the Director of Advanced Materials, Product Development at Boeing Commercial Aircraft. In this position she is accountable for the integrated materials portfolio for Boeing's commercial airplane products.

Tia is a Fellow by the Society for the Advancement of Material and Process Engineering (SAMPE), an International Past President of SAMPE, and was President of the Materials Research Society (2014). She is the BCA Executive Sponsor for Boeing's SAMPE External Technical Affiliation as well as Edmonds Community College. Serves on Iowa State University's Aerospace Engineering Department's Industry Advisory Council, University of Washington Materials Science & Engineering Department's Industry Advisory Council, and is a Trustee of Edmonds Community College.