TECHNOLOGY ENABLERS FOR ADVANCES IN AEROSPACE MATERIALS
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Materials technology is one of the core technologies in aerospace systems and advances in materials technologies are fundamental enablers for turning advanced design concepts into reality. However, introduction of new materials in aerospace systems is becoming increasingly infrequent because of the cost and time involved in development of new materials coupled with the inherent risk aversion of aerospace system designers. The focus in recent times has shifted to the development of adjacent technologies such as joining, coatings, life prediction and computational modeling and simulation to enhance the performance of existing materials at significantly reduced cost and time. This session aims to highlight some of the recent advances in adjacent technologies that are impacting modern aerospace materials.

Greg Ho will start the session by providing a review of a new and promising engineering approach known as integrated computational materials engineering (ICME) that has recently emerged and its application in aerospace structures. Its goal is to enable the optimization of the materials, manufacturing processes, and component design long before components are fabricated, by integrating the computational processes involved into a holistic system. Next, James LaManna will give a review of the advances in test methods used for development and qualification of aerospace material systems. In the third talk, Ashutosh Gandhi will focus on the challenges in developing new coatings to improve the performance of existing aerospace materials. Finally Amitava De will discuss the latest trends in the joining of aerospace materials. The session will conclude with a panel discussion where the experts address questions from the audience.