

**TRACK 1: STRUCTURES AND ADDITIVE MANUFACTURING**
**“CARBON-SCRIM SUPPORTED ELECTRICALLY CONDUCTIVE ADHESIVE JOINTS FOR AEROSPACE APPLICATIONS”**

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**ABSTRACT**

Light-weight multi material systems are profoundly used in modern aerospace structures that are assembled by adhesive bonding technology. Commercially available epoxy adhesive films are well modified to meet the mechanical and environmental loadings but not additional functional requirements. The carbon fiber reinforced polymeric composite adhesive joints can be designed with functionalized carbon scrims to be electrically conductive in nature that can assist in debonding on command, deicing, repairs and lightning protection. The scrims can be readily incorporated in the joint design without formulating the commercial epoxy adhesive films. In this work, resistive heating capability of different functionalized carbon scrims were experimented with and without adhesive layer. Subsequently, the carbon fiber reinforced polymeric composite adhesive joints were fabricated with functionalized carbon scrim and the resistive heating temperature was measured. A non-linear, coupled thermo-electrical model was developed and the numerical results were compared with experimental data.

**BIOGRAPHY OF SPEAKER**


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