



### **Crashworthiness of Composites – Certification by Analysis**

Gerardo Olivares, Ph.D. - National Institute for Aviation Research, Wichita State University

J. F. Acosta - National Institute for Aviation Research, Wichita State University

S. Keshavanarayana, Ph.D. – Dept. of Aerospace Engineering, Wichita State University

#### **ABSTRACT**

The Federal Aviation Administration, academia, and industry have been working together for many years to understand how transport airplane occupant safety can be improved for what are considered survivable accidents. In the evolution of the regulations, there is at present no specific dynamic regulatory requirement for airplane level crashworthiness. However, the FAA requires an assessment of each new model airplane to ensure that the airplane will have comparable or improved dynamic characteristics as those in current and previous designs. In order to design, evaluate and optimize the crashworthiness behavior of composite structures it is necessary to develop analytical methods and predictable computational tools. Topics presented include structural requirements, coupon level material model evaluation and component level evaluation.