

FOREWORD

The use of composites in aircraft design has been increased greatly in the last two decades. Improving the performance of composite structures in the aerodynamic environment remains a major concern in the design and maintenance of aircraft systems. Among some of the challenging problems are optimal control design of composite wings and damage detection of aging aircraft. The present special issue is motivated by the advent of relatively new materials being used in increasingly adverse environmental and loading conditions and their relevance in the defense and commercial industries.

With the additional goal of focusing on a specific topic, the goals of the special issue are identical to that of the journal and these are:

- (1) to bridge the gap between mechanics and materials science aspects of composites;
- (2) to encourage strongly interactions between basic and applied research groups in composites
- (3) to assess the state of the art in the modeling and analysis of modern composite structures and materials that are relevant to the needs of the commercial or defense industries. While both basic and applied research on composites are welcomed, every effort will be made to emphasize the "engineering" or "applications" aspects of composites.

In response to popular demands on the understanding and use of composites in the aircraft and vehicle industries, we are pleased to put together 14 excellent papers which deal with the use of composites in various aircraft-related technologies. It is felt that such technologies will have many spin-off benefits to other industries such as weapon systems, defense or commercial land and sea vehicles, sporting goods and civil engineering structures, amongst others. Most of these papers deal with the structural dynamics and design of composites. One can confidently predict that this research area will continue growing in the coming years. It is hoped that more authors will continue to submit high quality application-type papers to the regular issues of the *Composites Engineering* journal.

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