

# Overview

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The Eighth ASTM Conference on Composite Materials Testing and Design was held 29 April–1 May 1986 in Charleston, South Carolina. Since the First Materials Testing and Design Conference in 1969, this series of conferences has maintained a tradition of documenting progress in a variety of areas of interest to the composites community. The particular areas considered in this latest conference were:

1. Analysis
2. Impact and Compression
3. Materials Characterization
4. Failure Mechanisms
5. Nondestructive Evaluation
6. Filament Wound and Woven Composites

Each of these six areas could have been easily expanded into a single topic conference. Obviously, this Conference did not pretend to present an exhaustive state-of-the-art review of the six areas covered. Instead, there was a sampling of the technology. The papers in the Analysis session ranged from a continuum mechanics treatment of distributed damage to automated design procedures. The Impact and Compression session included such diverse, but related topics as modified materials for improved impact resistance, delamination growth under compression, and postbuckling of a composite panel with a cut out. The session on Materials Characterization included papers on determining interlaminar fracture toughness and fiber properties. There was also a paper on shear fatigue testing. Analytical and experimental studies of delamination growth were presented in the Failure Mechanisms session. In-plane, transverse shear, and bending loads were considered. The session also included one paper on the failure of thick laminates with notches. The papers in the Nondestructive Evaluation session described the use of acoustic emission to detect damage. Two acoustic emission techniques were described. One involved monitoring acoustic waves initiated by damage events. The other technique involved injecting a stress wave into a damaged specimen and then monitoring the interaction of the stress wave with the damage. The final session was on Filament Wound and Woven Composites. The papers ranged from modeling of the incremental nature of filament winding to measuring the strength of woven composites with molded-in holes.

This volume includes most of the papers presented at the Eighth Composite Materials Testing and Design Conference. It should be of interest to anyone involved in composite research or design of advanced composite structures.

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