

Failure of Notched Laminates under Out-of-Plane Bending

Taylor Rawlings, John Parmigiani | Oregon State University

- Direct measurement of fundamental material properties vs. extraction from semi-configured tests.
- Necessity to capture all details in analysis model vs. ability to account for “real-world” details.
- High value of “pure” properties – not observed further up the building block.
- How do we avoid non-physics-based “calibration” factors?

Development of a Building Block Approach for Crashworthiness Testing of Composites

Dan Adams | University of Utah

- Linkage between analysis tool inputs and building block testing.
- Focus on fundamental material properties vs semi-configured structure.
- Dynamic effects and development of test methods.
- Complex meso-scale failure behavior. How far down the building block can we go? How do we get away from “tribal knowledge” for laminate design?
- Potential competition between static properties and crashworthiness properties.

Safety and Certification of Discontinuous Fiber Composite Structures

Marco Salviato | University of Washington

- Analysis and certification approach – quasi-isotropic material vs laminated material.
- Statistical treatment of configuration and resulting properties.
- Effects on stiffness (stability, load distribution) vs. strength.
- Good typical values but potential large statistical knockdown.
- Scale dependence of material properties.
- Details of part driven by manufacturing details – variation within part and stability over manufacturing life.