Bridging the Scales: Continuum-Based Material Constitutive Modeling of Mechanical and Ballistic Test Data from Composites and Fabrics

Alexander J. Carpenter , Sidney Chocron , Charles E. Anderson Jr

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Highlight:

- A new continuum-level material modeling approach for composites/fabrics is presented.
- Model relates stresses/strains between elements, individual laminae, and fibers/matrix.
- The approach can reproduce a composite's response to a variety of stress states.
- Ballistic limits, damage extents, and deflections from composite/fabric targets were also predicted.