Accepted Manuscript

# Reduced order multiscale modeling of fiber reinforced polymer composites including plasticity and damage

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PII: S0167-6636(17)30018-2
DOI: 10.1016/j.mechmat.2017.05.003
Reference: MECMAT 2736

To appear in: *Mechanics of Materials*

Received date: 7 January 2017
Revised date: 5 May 2017
Accepted date: 11 May 2017

Please cite this article as: Harpreet Singh, Mohit Gupta, Puneet Mahajan, Reduced order multiscale modeling of fiber reinforced polymer composites including plasticity and damage, *Mechanics of Materials* (2017), doi: 10.1016/j.mechmat.2017.05.003

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## Highlights

- A multiscale approach for fiber reinforced polymer composites is proposed which considers the plasticity and damage.
- The work includes the characterization of epoxy resins which show nonlinear stress-strain response due to damage and plasticity.
- Experiments were performed to demonstrate the damage and plasticity dependent behavior of matrix material as well as to validate the plasticity model.
- The proposed formulation is applied to study low velocity impact of E-glass/epoxy composite.
- The simulation results are validated with the experiments.

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