

## **Prediction of the Elastoplastic Behavior of Circular Fiber-Reinforced Composites Considering a Finite RVE**

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### **Summary**

Micromechanical-based models have been widely used by many researchers and engineers because of potentialities to the complex problem of heterogeneous materials. In this paper, the performance predictions of circular fiber-reinforced composites considering a finite RVE are conducted using a newly derived elastoplastic micromechanics framework. A series of numerical simulations are carried out to evaluate the elastoplastic behavior and progressive damage of fiber-reinforced composites. The present predictions are compared with experimental data to validate the proposed elastoplastic micromechanics framework.

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