

## Mitigation of Size Effects in Woven Fabric Composites Using Finite Element Analysis Approach

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**Abstract :** High-performance requirements and emission norms were forcing the automobile industry to opt for lightweight materials which improve the fuel efficiency and absorb energy during crash applications. In such scenario, the woven fabric composites are providing better energy absorption compared to metals. Woven fabric composites have a repetitive unit cell (RUC) and the mechanical properties of these materials are highly dependent on RUC. This work investigates the importance of detailed modelling of the RUC, the size effects associated and the mitigation techniques to avoid them using Finite element analysis approach.

**Keywords :** repetitive unit cell, representative volume element, size effects, cohesive zone, finite element analysis

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