

## Finite Element Analysis of Composite Frames in Wheelchair under Upward Loading

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**Abstract :** The finite element analysis is adopted in this primary study. Using the Tsai-Wu criterion and delamination criterion, the stacking sequence  $[45/0_4/-45_4/90_4]_s$  is the final optimal design for the wheelchair frame. On the contrary, the uni-directional laminates, i.e.  $[90_{13}]_s$ ,  $[45_{13}]_s$  and  $[-45_{13}]_s$ , are bad designs due to the higher failure indexes.

**Keywords :** wheelchair frame, stacking sequence, failure index, finite element.

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