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On Crashworthiness Design of Sandwich Panels

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This study exemplifies sandwich panels with trapezoidal and triangular cores and traditional cores to determine the relationship between the structural parameters and the crashworthiness under low-velocity local impact and planar impact, further optimizing these structural parameters with the crashworthiness criteria by using multiobjective optimization techniques. The configurations of trapezoidal and triangular core cells are firstly optimized for maximizing energy absorption. The wall thickness of sandwich panels with optimal trapezoidal core shape is then optimized for crashworthiness.

Keywords: sandwich panels, impact, crashworthiness, optimization, energy absorption, explicit finite element