

## عنوان مقاله:

Axial Crush of Metallic and Hybrid Energy Absorbing Thin-walled Tubes with Polygonal Cross-sections: Numerical Analysis

## محل انتشار:

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## خلاصه مقاله:

Material properties and geometry are two important design parameters which their effects should be considered in a crashworthiness analysis. In this paper, the axial impact of metallic and hybrid energy absorbing thin-walled tubes with poly-gonal cross-section is simulated using LS-DYNA software. The combined effects of changing the geometry and material properties on the mass specific energy absorption (MSEA) as well as the mean and maximum crush forces are investigated. To compare the results, all metallic tubes have identical thickness, length, and circumference. The hybrid tubes are made of the same metallic tubes which are reinforced with special composite overlays. These materials are intentionally selected in such a way that the effects of yield strength and Young's modulus can be separately investigated. The results show that, in contrast with the current belief, there are some metallic and hybrid tubes with non- circular cross-section shapes, which have better mass specific energy absorption capabilities than the .circular ones during the impact

## کلمات کلیدی:

.axial crush, energy absorbing, hybrid thin-walled tubes, mean and maximum crush forces

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1865530>

