STUDY ON CRASHWORTHINESS CHARACTERISTICS OF SEVERAL CONCENTRIC THIN WALL TUBES

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ABSTRACT
There is a growing interest in the use of thin-wall structures as a means of absorbing the kinetic energy of a moving body. Multi-layered thin-wall structures are more efficient and lighter than thick-wall structures, and show better crashworthiness characteristics.
In this task, several concentric aluminum thin wall tubes as energy absorber under axial and oblique loading are studied and optimum combination of these tubes is presented.
The weight of the tubes is optimized while crashworthiness of tubes is not compromised. The commercial finite element program LS-DYNA that offers non-linear dynamic simulation capabilities was used in this study.