

## **Impact response of sandwiched-steel beams with rubber core**

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**Abstract:** Sandwiched structures play a very important role in day to day applications due to their reduced weight and enhanced structural capabilities. Rubber exhibits hyper elastic behavior with large strains. Hyper elastic materials are widely used for diverse structural applications in a variety of industries. The most attractive property of rubbers is to experience large deformations under small loadings. Their stress strain behavior is highly non linear and a simple modulus of elasticity is no longer sufficient. Therefore characterization of elastic behavior of highly extensible, non linear materials is of great importance. The aim of the present work is to characterize rubber as hyper elastic material and to determine a stress and strain behavior at various strain rates. The resultant curves exhibit non linear behavior with strong sensitivities to strain rates. A strain rate dependent model for material behavior is evolved based on the above test methods. The sandwiched beams are analyzed based on the above discussed considerations.

**Keywords:** Sandwiched, hyper elastic, deformation, non linear, modulus of elasticity