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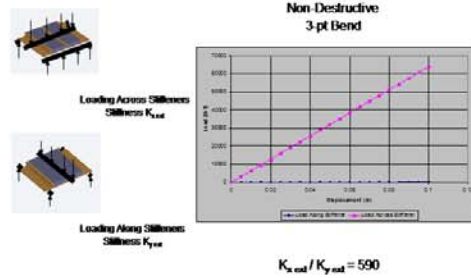
University of Delaware . Center for Composite Materials

INTRODUCTION

- Objectives for emerging military vehicles call for designs that are lighter, have higher threat protection and can be upgraded as improved armor systems are developed or when higher protection is required.
- With the development of new lightweight armor solutions the potential exists to dramatically reduce armored vehicle weight by employing these materials into the structural aspects.
- The Composite Armored Vehicle – Integrated Hybrid Structures program seeks to demonstrate an approach to vehicle design that meets the objectives for emerging military vehicles.
- Hybrid armor concepts involving periodically arranged stiffeners can have an orthotropy in stiffness.
- Introduction of armor modules to the stiffened vehicle skin in a manner that incorporates the armor into the structure adds to the stiffness and reduces the orthotropy.
- Modeling and testing of hybrid armor structural components leads to the understanding of how these materials will perform in actual vehicle applications



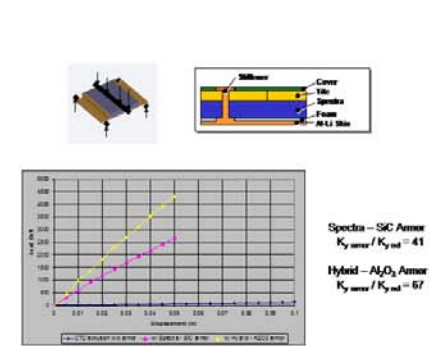
STIFFENED PANEL ORTHOTROPY



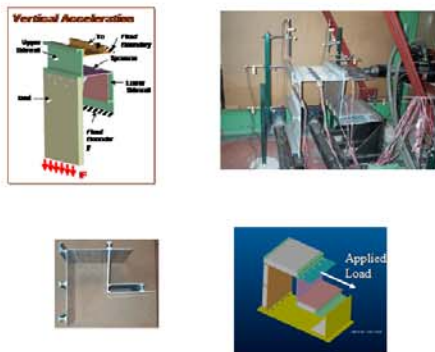
ACKNOWLEDGEMENTS

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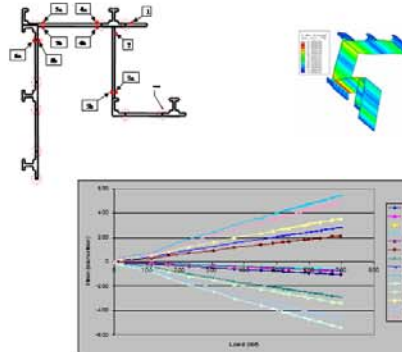
STIFFENED PANELS WITH ARMOR



STRUCTURAL COMPONENT TESTING



STRAIN MEASUREMENTS



DISTORTION MEASUREMENTS

