

13TH INTERNATIONAL CONFERENCE ON
ADVANCED MATERIALS AND NANOTECHNOLOGY
OCTOBER 26-28, 2017 OSAKA, JAPAN

A study on the collision characteristic of the side crash simulation with three dimensional structure

Min-sik Lee, Ji-Hoon Hwang and Chung-gil Kang
Pusan National University, Republic of Korea

Recently in the automobile industries, the development of environment friendly materials for improving the safety and fuel efficiency of automobiles has come to the fore. As the demand for the technological development to achieve high performance and high efficiency increases, the research on applying advanced high-strength steel to parts manufactured by the hot press process has progressed. Further, research and development for fuel efficiency through additional weight reduction using Tailor Welded Blanks (TWBs) and Partial Quenching (PQ) has quickly spread in the automobile industry. Moreover, lighter materials than those currently used, materials having a high strength-weight-ratio and specific strength, are required such as hybrid steel/CFRP composites. Many car components have been replaced with various materials to improve collision toughness and safety during car crash. However, the standard of evaluation to replace auto part is still lacking. The standard needs to depend on mechanical properties of tensile and bending. The car crash test was conducted at IIHS to evaluate safety. But it's expensive and hard to evaluate collision toughness each car component. In this study, the side crash test was conducted by simulation and the collision characteristic of the center-pillar was evaluated. Fracture toughness was compared according to materials to propose a standard of collision test condition. As a result, the correlation between mechanical properties, weight reduction and collision toughness was investigated.

Biography

Min-sik Lee has completed his PhD from Pusan National University. He has published more than 16 papers in SCI journals and has received best paper award from England, best researcher 2016 in BK21 plus.

minsik2@pusan.ac.kr

Notes: