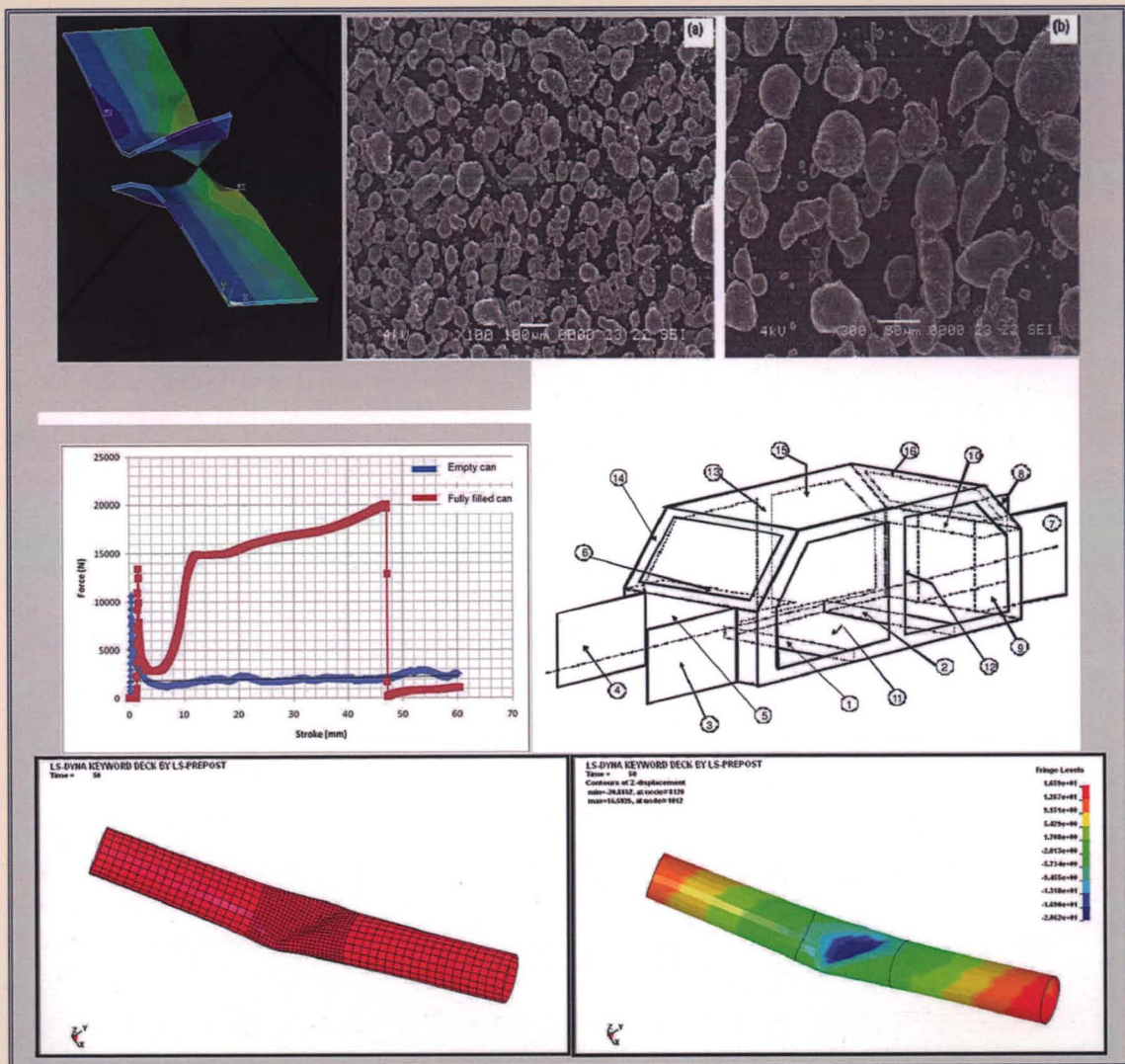


ADVANCED TOPICS IN MECHANICAL BEHAVIOR OF MATERIALS



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Meftah Hrairi



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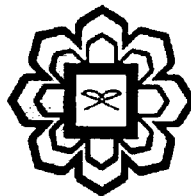
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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EXPERIMENTAL AND SIMULATION RESULTS OF CYLINDRICAL SHELL BUCKLING

Qasim H. Shah, Hasan M. Abid, Adib B. Rosli

1. INTRODUCTION

The cans were designed using ANSYS Software. The compression tests were edited and numerically solved using LS-DYNA explicit finite element code. Quarter model with symmetry boundary condition was used for the simulation. The simulations were done for the empty can and fully filled can to see the distinction of deformation under axial compression load. From the simulation, we also observed the difference of internal energy for the empty and fully filled cans in the circular cylinder and for the whole structure. In this chapter both experimental and simulation results are compared for the validation process of the simulation analysis.

2. COMPARISON OF RESULTS

For the compression test, we have determined the behavior of materials under crushing loads. The circular cylindrical cans were compressed and deformation at various compression rate and stroke were recorded. From the results obtained, we can see that the deformation patterns of the empty cans are totally different with the fully filled cans. Figure 2 shows the difference of structure failure between the empty and fully filled cans for the experimental work compared to the simulation using LS-DYNA.