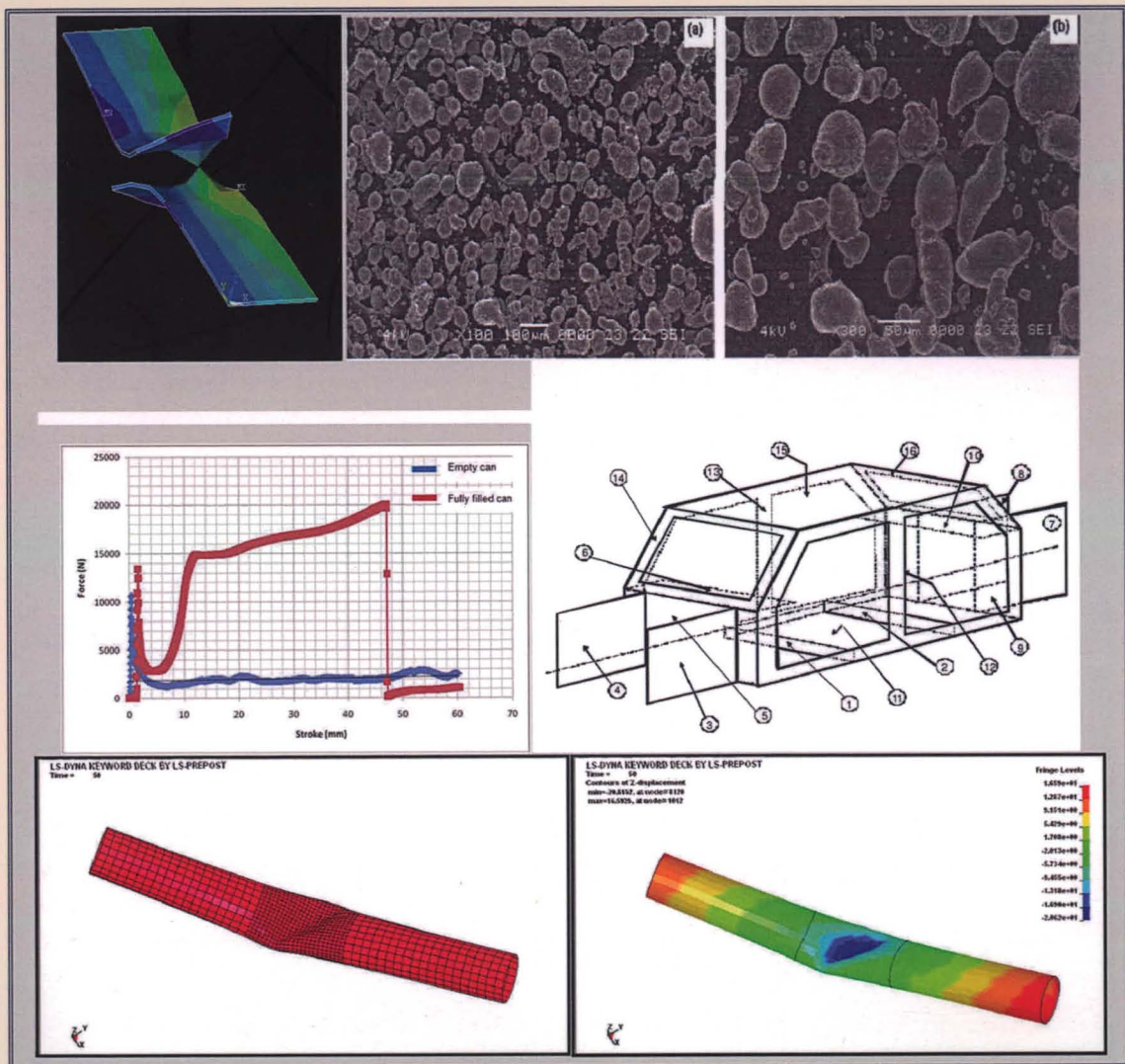


ADVANCED TOPICS IN MECHANICAL BEHAVIOR OF MATERIALS



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Meftah Hrairi



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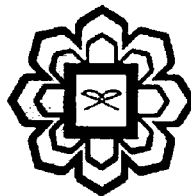
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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Contents

| | |
|-----------------------|-----|
| Preface..... | x |
| Acknowledgments | xii |
| Editor..... | xiv |
| Contributors | xvi |

Section 1 Buckling

| | | |
|----|---|----|
| 1 | Cylindrical Shell Buckling Under Axial Compression Load | 3 |
| | <i>Qasim H. Shah, Hasan M. Abid, Abid B. Rosli</i> | |
| 2 | Experimental Setup of Empty and Water Filled Cylindrical Shell Buckling | 8 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 3 | Experimental Results of Empty and Water Filled Cylindrical Shell Buckling | 13 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 4 | Experimental Results of Empty and Water Filled Cylindrical Shell Buckling for 50mm Stroke | 18 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 5 | Experimental Results of Empty and Water Filled Cylindrical Shell Buckling for 60mm Stroke | 24 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 6 | Simulation Setup of Empty and Water Filled Cylindrical Shell Buckling | 30 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 7 | Simulation Results of Empty and Water Filled Cylindrical Shell Buckling | 35 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 8 | Experimental and Simulation Results of Cylindrical Shell Buckling | 41 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 9 | Buckling and Crush Analysis of Light Weight Structure | 48 |
| | <i>Kassim A. Abdullah and Wan Nur Hidayah Wan Sulaiman</i> | |
| 10 | Analysis of Lightweight Structural Tubes for Crashworthy Car Body | 54 |
| | <i>Kassim A. Abdullah and Zahra Roslan</i> | |

Section 2 Impact

| | | |
|----|--|----|
| 11 | Pipe Whip Impact | 61 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 12 | Experimental Setup of Pipe Whip Impact | 66 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |

| | | |
|----|--|------------|
| 13 | Experimental Results of Pipe Whip Impact | 71 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 14 | Simulation Setup of Pipe Whip Impact | 77 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 15 | Simulation Results of Pipe Whip Impact at 55° Angle | 82 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 16 | Simulation Results of Pipe Whip Impact at 90° Angle | 87 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 17 | Failure Mechanism of PC Armor Plates with PMMA Sacrificial Layer Subjected to Impact | 93 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 18 | Damage of Polycarbonate Armor Plate Subjected to Impact | 106 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 19 | Finite Element to Predict Damage of a Polycarbonate Armor Plate Subjected to Impact | 112 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 20 | Energy Absorbing Capability of Materials Subjected to Impact Under Gravity Loading | 120 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 21 | Damage Assessment of Liquid Filled Container Subjected to Free Fall on Rigid Steel Plate | 127 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 22 | Numerical Analysis of Materials Energy Absorbing Capability Under Gravity Loading Impact .. | 134 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 23 | Numerical Assessment of Liquid Filled Container Subjected to Free Fall on Rigid Steel Plate | 141 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |

Section 3 Design and Manufacturing

| | | |
|----|---|------------|
| 24 | Overview of the Powder Metallurgy Process | 151 |
| | <i>Meftah Hrairi, Asmu'i Hussi, Fadzly Mohamad Ravi</i> | |
| 25 | Mechanical Properties of Sintered Aluminum Alloy Compacts | 156 |
| | <i>Meftah Hrairi, Fadzly Mohamad Ravi</i> | |
| 26 | Numerical Simulation of Green Compacts | 161 |
| | <i>Meftah Hrairi, Asmu'i Hussin</i> | |
| 27 | Experimental Studies of Dieless Forming | 167 |
| | <i>Meftah Hrairi, Saiful Mazwan Nawi</i> | |
| 28 | Study of Spot Welding Process | 172 |
| | <i>Meftah Hrairi, Fatimah Jamil</i> | |
| 29 | General Framework for Inverse Identification of Consecutive Parameters | 177 |

Meftah Hrairi

| | | |
|-----------|---|------------|
| 30 | Inverse Parameter Identification of Elastic and Inelastic Constitutive Material Models | 183 |
| | <i>Meftah Hrairi</i> | |
| 31 | Enhancing Magnetic Particle Testing of Automotive Parts | 189 |
| | <i>Meftah Hrairi, Salah Echrif</i> | |
| 32 | Design and Fabrication of the Testing Model of the Vehicle Structure Test System | 196 |
| | <i>Kassim A. Abdullah and Cheah Siew Loong</i> | |
| 33 | Design Analysis of Laminated Composite Ladder Chassis Frame of Light Truck | 202 |
| | <i>Kassim A. Abdullah and Mohd Zaimi bin Rosli</i> | |
| 34 | Design and Development of Driving System for Disabled Driver | 208 |
| | <i>Kassim A. Abdullah, J.S. Mohamed Ali, Mohd Azlan bin Habeeb Rahmathullah, Ruzael Amir Afendi b. Kaharuddin</i> | |

Section 4 Liquid Sloshing

| | | |
|-------------------|--|------------|
| 35 | Liquid Sloshing | 215 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 36 | Experimental Study of Liquid Slosh Dynamics in a Half Filled Cylindrical Tank | 220 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 37 | Experimental Results of Liquid Slosh in a Cylindrical Tank with Different Fill Levels | 226 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 38 | Simulation Model of 3D Liquid Slosh in a Partially Filled Cylindrical Tank | 233 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 39 | Simulation Results of Liquid Slosh in a Partially Filled Cylindrical Tank | 238 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| 40 | Numerical and Experimental Results of Liquid Slosh in a Partially Filled Cylindrical Tank | 242 |
| | <i>Qasim H. Shah, Hasan M. Abid, Adib B. Rosli</i> | |
| Index..... | | 247 |

6

SIMULATION SETUP OF EMPTY AND WATER FILLED 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. A quarter model with symmetry boundary condition was used for the simulation. The simulations were done for empty and fully-filled cans to see the differences in deformation under axial compression load. From the simulation, the differences in internal energy for the empty and fully filled cans in the circular cylinder and for the whole structure were observed.

LS-DYNA is an advanced general-purpose multi-physics simulation software package that is actively developed by the Livermore Software Technology Corporation (LSTC). While the package continues to contain more and more possibilities for the calculation of many complex, real world problems, its origins and core-competency lie in highly nonlinear transient dynamic finite element analysis (FEA) using explicit time integration. LS-DYNA is being used by the automobile, aerospace, construction, military, manufacturing, and bioengineering industries. LS-DYNA consists of a single executable file and is entirely command line driven. Therefore all that is required to run LS-DYNA is a command shell, the executable, an input file, and enough free disk space to run the calculation. All input files are in simple ASCII format and thus can be prepared using any text editor. Input files can also be prepared with the aid of a graphical preprocessor. There are many third party software products available for preprocessing