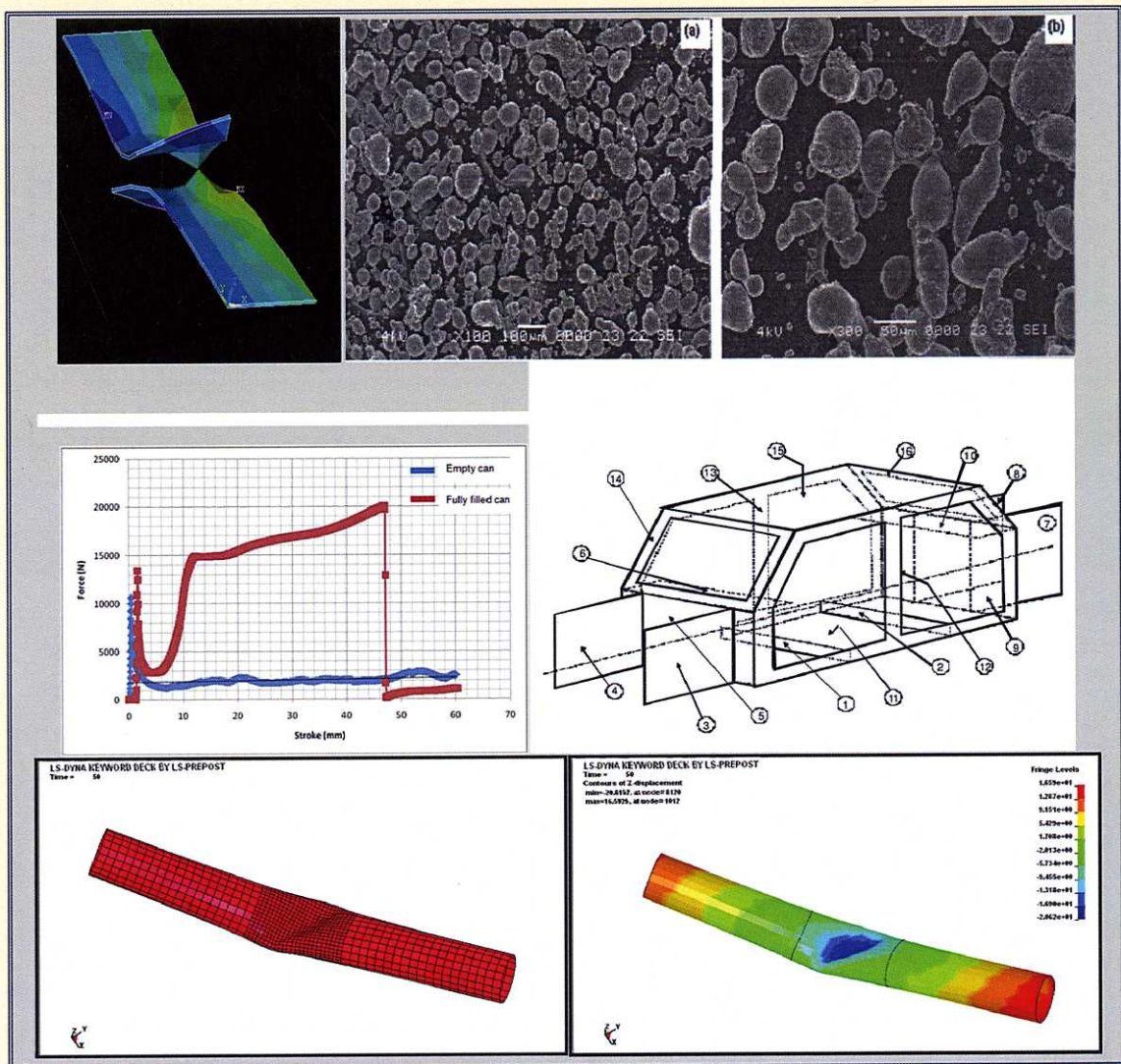


# ADVANCED TOPICS IN MECHANICAL BEHAVIOR OF MATERIALS



Edited by

**Meftah Hrairi**



IIUM PRESS

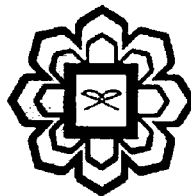
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

ADVANCED TOPICS IN MECHANICAL BEHAVIOR OF MATERIALS

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Edited by

Meftah Hrairi



IIUM Press

Published by:  
IIUM Press  
International Islamic University Malaysia

First Edition, 2011  
©IIUM Press, IIUM

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Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

ISBN: 978- 967-418-174-1

Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM  
(Malaysian Scholarly Publishing Council)

Printed by :  
**IIUM PRINTING SDN. BHD.**  
No. 1, Jalan Industri Batu Caves 1/3  
Taman Perindustrian Batu Caves  
Batu Caves Centre Point  
68100 Batu Caves  
Selangor Darul Ehsan

# Contents

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

### **Section 3 Design and Manufacturing**

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

*Meftah Hrairi*

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

#### **Section 4 Liquid Sloshing**

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

## EXPERIMENTAL SETUP OF PIPE WHIP IMPACT

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

### 1. INTRODUCTION

Pipe whip is a safety related issue for nuclear power and chemical plants, where pipes are often used to transport fluids at high pressure and high temperature. Experiment works for empty pipe and liquid filled pipe are needed in this study. The model was made of simple pipe whip system which enables the missile pipe to hit the target pipe at an angle of  $90^\circ$  and also  $55^\circ$  oblique impact. The possible damages occur on the target pipe when the missile pipe hit it at certain velocity depend on the different mass of dropper and different diameter of the target pipe. Copper pipe is used as the target pipe and steel as the missile pipe.

### 2. DESIGN OF THE PIPE WHIP SYSTEM

To make our own pipe whip system, we designed the frame by using CATIA software. After that, we assembled the missile pipe and target pipe together with the frame and rotating steel pipe that holds the missile pipe in place. After designing using the pipe whip system using CATIA, we bought the equipments needed to fabricate it. We used L bar, steel pipe and bearing. Several L bars were welded together to make the frame.

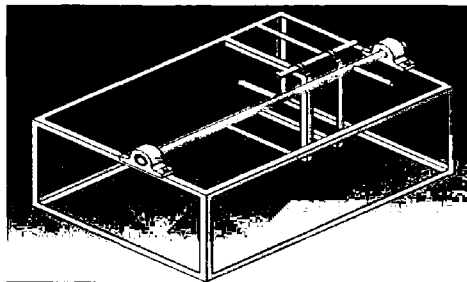


Figure 1 Design of the frame using CATIA