# TABLE OF CONTENTS

## PART 1

### PREFACE

N. K. Gupta, M. A. Iqbal

60 YEARS OF RESEARCH IN PLASTICITY THE CONTRIBUTIONS OF TH. LEHMANN AND HIS GROUP

Otto T. Bruhns

ADVANCES IN THE THEORY OF SURFACE GROWTH WITH APPLICATIONS TO ADDITIVE MANUFACTURING TECHNOLOGIES

Alexander V. Manzhirov

RECENT ADVANCES AND FUTURE TRENDS ON PLASTICITY AND IMPACT MECHANICS OF SHIPS AND OFFSHORE STRUCTURES

Jeom Kee Paik

POSTBUCKLING RESPONSES OF THE PANELS SUBJECTED TO COMBINED COMPRESSION AND SHEAR STRESSES

N. Aswini, H.-G. Reimerdes, N. K. Gupta

CHARACTERISATION AND PARAMETERS IDENTIFICATION OF MATERIALS CONSTITUTIVE AND DAMAGE MODELS: FROM NORMALISED DIRECT APPROACH TO MOST ADVANCED INVERSE PROBLEM RESOLUTION

E. Markiewicz, B. Langrand

IMPACT OF HIGH-VELOCITY GRANULAR MEDIA ON INCLINED TARGETS

A. Goel, V. S. Deshpande

STRUCTURAL PROTECTIVE DESIGN WITH INNOVATIVE CONCRETE MATERIAL AND RETROFITTING TECHNOLOGY

Chengqing Wu, Jun Li

PENETRATION RESEARCH OF DUAL-MODE PENETRATOR FORMED BY SHAPED CHARGE WITH WAVE SHAPER

Chen Shuai, Li Wei-Bing, Wang Xiao-Ming, Yao Wen-Jin

LIP FORMATION AND EJECTA FROM LPSP-TYPE MAGNESIUM ALLOY PLATES IN HYPERVELOCITY IMPACT

Masahiro Nishida, Kaito Ishida, Fumiya Kodama, Koichi Hayashi, Yasuhiro Akahoshi, Kazuyuki Hokamoto, Tsuyoshi Mayama, Michiaki Yamasaki, Yoshihito Kawamura

NUMERICAL MODELLING OF BALLISTIC IMPACT ON HMPP WOVEN FABRIC IMPREGNATED WITH SHEAR-THICKENING FLUIDS

A. H. Mirrahimi, M. Hasanzadeh, V. Mottaghitalab, P. Sharma

PREDICTION OF EJECTED MASS FROM HYBRID-FIBER REINFORCED CONCRETE SLABS SUBJECTED TO IMPACT LOADS

Husain Abbas, Tarek Almusallam, Yousef Al-Salloum, Nadeem Siddiqui

LOCAL IMPACT DAMAGE RESPONSE OF CFRP STRENGTHENED CONCRETE SLABS

Aref Abadel, Husain Abbas, Tarek Almusallam, Yousef Al-Salloum, Nadeem Siddiqui

INFLUENCE OF GEOMETRY AND HARDNESS OF THE BACKING PLATE ON BALLISTIC PERFORMANCE OF BI-LAYER CERAMIC ARMOR

Govind Gour, Ahmad Serjouei, Idapalapati Sridhar

PRELIMINARY ASSESSMENT OF THE POSSIBILITIES OF THE PARTICLE FINITE ELEMENT METHOD IN THE NUMERICAL SIMULATION OF BIRD IMPACT ON AERONAUTICAL STRUCTURES

M. L. Cerquaglia, G. Deliège, R. Boman, J. P. Ponthot

NUMERICAL INVESTIGATIONS OF SPHERICAL PROJECTILE IMPACT ON 4 MM THICK MILD STEEL PLATE

P. K. Pradhan, N. K. Gupta, Subail Ahmad, P. P. Biswas, Dayanand

LARGE DEFORMATION INVESTIGATIONS ON 4 MM MS PLATE

P. K. Pradhan, N. K. Gupta, Subail Ahmad, Dayanand, P. P. Biswas

OBSERVATIONS ON IMPACTS OF DEFORMABLE CONICAL PROJECTILES AT 60 DEGREE TARGET OBLIQUITY

Vijeesh Vijayan, S. Hegde, N. K. Gupta
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental and Numerical Study of Concrete Targets Under High Rate of Loading</td>
<td>130</td>
</tr>
<tr>
<td>Abhishek Rajput, M. A. Iqbal</td>
<td></td>
</tr>
<tr>
<td>Plain and Reinforced Concrete Targets Subjected to Projectile Impact</td>
<td>138</td>
</tr>
<tr>
<td>M. A. Iqbal, Abhishek Rajput</td>
<td></td>
</tr>
<tr>
<td>Energy Absorption in Metallic Targets Subjected to Oblique Impact</td>
<td>145</td>
</tr>
<tr>
<td>Zaaid Mohammad, P. K. Gupta, M. A. Iqbal, Abdul Baqi</td>
<td></td>
</tr>
<tr>
<td>Dynamic Response of Laminated GFRP Composite Under Low Velocity Impact: Experimental and Numerical Study</td>
<td>153</td>
</tr>
<tr>
<td>Md. M. Ansari, Anupam Chakrabarti, M. Ashraf Iqbal</td>
<td></td>
</tr>
<tr>
<td>Ballistic Performance of Unidirectional Glass Fiber Laminated Composite Plate Under Normal and Oblique Impact</td>
<td>161</td>
</tr>
<tr>
<td>Md. M. Ansari, Anupam Chakrabarti</td>
<td></td>
</tr>
<tr>
<td>Influence of Target Span and Boundary Conditions on Ballistic Limit of Thin Aluminum Plate</td>
<td>169</td>
</tr>
<tr>
<td>G. Tiwari, M. A. Iqbal, P. K. Gupta</td>
<td></td>
</tr>
<tr>
<td>Energy Absorption Characteristics of Carbon/Epoxy Nano Filler</td>
<td>175</td>
</tr>
<tr>
<td>Dispersed Composites Subjected to Localized Impact Loading</td>
<td></td>
</tr>
<tr>
<td>M. Pushparaja, G. Balaganesan, R. Velmurugan, N. K. Gupta</td>
<td></td>
</tr>
<tr>
<td>Inelastic Response and Energy Dissipation in Ceramics Using Deshpande and Evans Constitutive Model</td>
<td>182</td>
</tr>
<tr>
<td>Saptarshi Kumar Lahiri, L. S. Ramachandra</td>
<td></td>
</tr>
<tr>
<td>Simulation and Analysis of Ballistic Impact Using Continuum Damage Mechanics (CDM) Model</td>
<td>190</td>
</tr>
<tr>
<td>Manoj Kumar, Utkarsh Deep, P. M. Dixit</td>
<td></td>
</tr>
<tr>
<td>Determination of Hugoniot Elastic Limit (HEL) and Equation of State (EOS) of Ceramic Materials in the Pressure Region 20 GPa to 100 GPa</td>
<td>198</td>
</tr>
<tr>
<td>P. C. Gautam, Rajneesh Gupta, A. C. Sharma, Manjit Singh</td>
<td></td>
</tr>
<tr>
<td>Quasi-Brittle Fracture of Aluminium Alloy 2014 Under Ballistic Impact</td>
<td>206</td>
</tr>
<tr>
<td>Prince Sharma, Pradeep Chandel, Puneet Mahajan, Manjit Singh</td>
<td></td>
</tr>
<tr>
<td>Influence of Heat Treatment on the Ballistic Behavior of AA-7017 Alloy Plate Against 7.62 Deformable Projectiles</td>
<td>214</td>
</tr>
<tr>
<td>An Experimental Study on the Deformation Behavior of Aluminium Armour Plates Impacted by Two Different Non-Deformable Projectiles</td>
<td>222</td>
</tr>
<tr>
<td>Numerical Study on the Ballistic Impact Response of Aramid Fabric-Epoxy Laminated Composites by Armor Piercing Projectile</td>
<td>230</td>
</tr>
<tr>
<td>N. Nayak, A. Banerjee, T. R. Panda</td>
<td></td>
</tr>
<tr>
<td>Energy Loss Due to Adhesion During the Impact of Elastic Spheres</td>
<td>238</td>
</tr>
<tr>
<td>U. B. Jayadeep, M. S. Bohji</td>
<td></td>
</tr>
<tr>
<td>Studies for Improved Damage Tolerance of Ceramics Against Ballistic Impact Using Layers</td>
<td>244</td>
</tr>
<tr>
<td>Kiran Akella</td>
<td></td>
</tr>
<tr>
<td>Finite Element Simulation of Impact on PASGT Army Helmet</td>
<td>251</td>
</tr>
<tr>
<td>Mayank Singh Rajput, Manish Kumar Bhuarya, Arpan Gupta</td>
<td></td>
</tr>
<tr>
<td>Finite Element Simulation of Impact on Metal Plate</td>
<td>259</td>
</tr>
<tr>
<td>Manish Kumar Bhuarya, Mayank Singh Rajput, Arpan Gupta</td>
<td></td>
</tr>
<tr>
<td>Low Velocity Impact Responses of Functionally Graded Plates</td>
<td>264</td>
</tr>
<tr>
<td>Hariveer Singh, Bulon Ch. Hazaratika, Sudip Dey</td>
<td></td>
</tr>
<tr>
<td>Tip Failure and Residual Velocity in Impact of Hollow AL-6061 T6 Projectiles on Thin AL-6061 T6 Plates</td>
<td>271</td>
</tr>
<tr>
<td>Vishal Mehra, Sambaran Pahari, Aditya Nandan Savita, I. N. N. Surya Prasad, N. Shiv, Shashank Chaturvedi, I. P.</td>
<td></td>
</tr>
<tr>
<td>F. Team</td>
<td></td>
</tr>
<tr>
<td>Response of E-Glass/Epoxy and Dyneema® Composite Laminates Subjected to Low and High Velocity Impact</td>
<td>278</td>
</tr>
<tr>
<td>T. Sreekantha Reddy, P. Rama Subha Reddy, V. Madhu</td>
<td></td>
</tr>
<tr>
<td>Effect of Tile Thickness and Projectile Velocity on the Ballistic Performance of Boron Carbide Against 12.7 MM AP</td>
<td>286</td>
</tr>
<tr>
<td>S. G. Savio, V. Madhu</td>
<td></td>
</tr>
</tbody>
</table>
BEHAVIOUR OF ADHESIVE BONDED AND MECHANICALLY CONNECTED STEEL-CONCRETE COMPOSITE UNDER IMPACT LOADING .......................................................................................................................... Pankaj Kumar, Sandeep Chaudhary, Rajesh Gupta 447

PERFORMANCE OF BLC-200 CASK UNDER 9M DROP TEST ................................................................................................................................. 455
Saquib, D. K. Sahoo, P. Srivastava, A. K. Kohli, G. Ganesh

LOW-VELOCITY IMPACT RESPONSE OF DELAMINATED COMPOSITE CONICAL SHELLS IN HYGROTHERMAL ENVIRONMENT DUE TO TIME-DELAY .......................................................................................................................... 463
Tanmoy Bandopadhyay, Amit Karmakar

BLAST PERFORMANCE OF COMPOSITE SANDWICH STRUCTURES ............................................................................................................................. 471
John P. Dear, Emily Rolfe, Mark Kelly, Hari Arora, Paul A. Hooper

A NEW METHOD FOR STRUCTURAL ASSESSMENT OF TOPSIDE STRUCTURE SUBJECTED TO HYDROCARBON EXPLOSIONS .......................................................................................................................... 479
Sang Jin Kim, Bong Ju Kim, Jung Kwan Seo, Jeom Kee Paik

BLAST IMPACT ANALYSIS OF STIFFENED AND CURVED PANEL STRUCTURES ................................................................. 487
Ahmed Furqan, Sigit P. Santosa, Audita S. Putra, Djarot Widagdo, Leonardo Gunawan, Faizal Arifurrhman

RESPONSE ANALYSIS OF BLAST IMPACT LOADING OF METAL-FOAM SANDWICH PANELS ................................................................................................................................. 495
Sigit P. Santosa, Faizal Arifurrhman, Moh. Hafidz Izzudin, Djarot Widagdo, Leonardo Gunawan

NUMERICAL MODELING OF AIR SHOCK WAVE PROPAGATION USING FINITE VOLUME METHOD AND LINEAR HEAT TRANSFER .......................................................................................................................... 503
Michal Linder, Zbigniew Szczesniak

SHOCK RESPONSE ANALYSIS OF BLAST HARDENED BULKHEAD IN PARTIAL CHAMBER MODEL UNDER INTERNAL BLAST .......................................................................................................................... 511
Sang-Gab Lee, Hwan-Soo Lee, Jae-Seok Lee, Yong Yook Kim, Gul Gi Choi

FAILURE ANALYSIS OF V-SHAPED PLATES UNDER BLAST LOADING ................................................................................................. 519
Agesh Markose, C. Lakshmana Rao

LARGE DEFORMATIONS AND TEARING OF CIRCULAR PLATES AND PLATE-TUBE STRUCTURAL COMBINATIONS UNDER IMPULSIVE LOADING ........................................................................................................ 526
Captain Nagesh, N. K. Gupta

ON THE RESPONSE OF HEMISPHERICAL SHELL UNDER BLAST LOADING .................................................................................................................. 533
P. K. Sharma, B. P. Patel, Harbhans Lal

NONLINEAR RESPONSE OF LAMINATED PANELS UNDER BLAST LOAD .......................................................................................................................... 539
Emarti Kumari, M. K. Singh

BLAST PROTECTION OF INFRASTRUCTURE WITH FLUID FILLED CELLULAR POLYMER FOAM ................................................................................................................................. 547
K. Venkataramana, Ram Kumar Singh, Antindya Deb, Vivek Bhasin, K. K. Vaze, H. S. Kushwaha

AIR-BLAST INDUCED GROUND DISPLACEMENT ................................................................................................................................. 555
Shashank Pathak, G. V. Ramanu

IMPACT TESTING FACILITY: BHISM FOR PERFORMANCE BASED DESIGN OF REINFORCED CONCRETE (RC) STRUCTURES .................................................................................................................. 563
G. Jasawath, Suman Kumar, Harshikesh Sharma

STUDY OF BLAST WAVE PRESSURE MODIFICATION THROUGH RUBBER FOAM .......................................................................................................................... 570
Inderpal Singh Sandhu, Ankush Sharma, Prince, Mritunjay Kumar Singh, Rajesh Kumar, Prashant S. Alegaonkar, D. R. Saroha

FINITE ELEMENT PREDICTION OF STATIC BURST PRESSURE IN CLOSED THICK-WALLED UNFLAWED CYLINDERS OF DIFFERENT DIAMETER RATIOS ........................................................................................................ 577
Mahesh Kadam, G. Bala Murguan, Aditya A. Bujurke, Keeritivardhan M. Joshi

COMPOSITE WALL TEST-CHAMBER ASSESSMENT FOR HYDROGEN BLAST LOADS .......................................................................................................................... 585
Ram Kumar Singh

MODELLING OF HIGH STRAIN RATE FAILURE UNDER ASB AND MICROVOIDING .......................................................................................................................... 593
Hannah Lois Dorothy, Patrice Longère, André Dragon

A TECHNIQUE FOR HI-SPEED INDENTATION EXPERIMENT BASED ON HOPKINSON BAR .......................................................................................................................... 601
Zhang Qinghui, Qin Kun, Song Li

THE EFFECT OF SPECIMEN DIMENSION ON THE RESULTS OF THE SPLIT-HOPKINSON TENSION BAR TESTING .......................................................................................................................... 608
Dini A. Prabowo, Muhammad A. Kariem, Leonardo Gunawan

NUMERICAL SIMULATION FOR BAR STRAIGHTNESS EFFECT IN SPLIT HOPKINSON PRESSURE BAR .......................................................................................................................... 615
Afadhil, Leonardo Gunawan, M. A. Kariem, Tatacipta Dirgantara, I. S. Putra
AN ENHANCED METHODOLOGY FOR LIGHTWEIGHTING A VEHICLE DESIGN CONSIDERING FRONT CRASHWORTHINESS AND PEDESTRIAN IMPACT SAFETY REQUIREMENTS ................................................................. 623
G. R. Srinivas, A. Deb, R. Sanketh, N. K. Gupta

A STUDY ON THE MECHANICAL BEHAVIORS OF JUTE-POLYESTER COMPOSITES ................................................................. 631
Anindya Deb, Sunimetre Das, Ashok Mache, Rakesh Lalshram

RHEOLOGICAL BEHAVIOUR OF ROCK SALT UNDER UNIAXIAL COMPRESSION ................................................................. 639
Aditya Singh, Chandan Kumar, L. Gopi Kannan, K. Seshagiri Rao, R. Ayathiraman

DYNAMIC RESPONSE OF DECCAN TRAP BASALT UNDER HOPKINSON BAR TEST ................................................................. 647
Aks Malik, Tanusree Chakraborty, K. S. Rao, D. Kumar, P. Chandel, P. Sharma

PART 2

IMPACT RESPONSE OF SHEAR THICKENING FLUID (STF) TREATED HIGH STRENGTH POLYMER COMPOSITES – EFFECT OF STF INTERCALATION METHOD ................................................................. 655
Neelanchali Asija, Hemant Chouhan, Shishay Amare Gebremeskel, Naresh Bhatnagar

PARAMETER ESTIMATION OF METAL PLASTICITY FROM TIME HISTORY DATA OF TAYLOR IMPACT TEST ................................................................. 663
Subhajit Sen, Biswanathan Banerjee, Amit Shaw

BALLISTIC PERFORMANCE OF BILAYER ALUMINA/ALUMINIUM AND SILICON CARBIDE/ALUMINIUM ARMOURS ................................................................. 671
J. Venkatesan, M. A. Iqbal, V. Madhu

IMPACT AND TENSILE TESTING OF AL2024 ALLOY PROCESSED BY FRICTION STIR PROCESSING ................................................................. 679
Atul Suri, Ankit Sahai, K. Hans Raj, N. K. Gupta

EFFECT OF SPECIMEN THICKNESS ON HIGH STRAIN RATE PROPERTIES OF KEVLAR/POLYPROPYLENE COMPOSITE ................................................................. 694
Hemant Chouhan, Neelanchali Asija, Shishay Amare Gebremeskel, Naresh Bhatnagar

DESIGN AND DEVELOPMENT OF AN INTEGRATED COMPRESSIVE - TENSILE POLYMERIC SPLIT HOPKINSON PRESSURE BAR SETUP ................................................................. 702
S. H. Kadhane, H. N. Warhatkar

SMALL PUNCH AND INDENTATION TESTS FOR STRUCTURAL HEALTH MONITORING ................................................................. 710
Asif Hussain, Ravi Sharma, D. K. Sehgal

NUMERICAL SIMULATION OF COBALT ABSORBER ROD TRANSPORTATION FLASK UNDER IMPACT LOADING AND DESIGN OF IMPACT LIMITER CAGE ................................................................. 718
J. V. Mane, V. M. Chavan, R. J. Patel

MECHANICAL PROPERTY EVALUATION OF POLYURETHANE FOAM UNDER QUASI-STATIC AND DYNAMIC STRAIN RATES- AN EXPERIMENTAL STUDY ................................................................. 726

STUDY ON PARTIAL REPLACEMENT OF SILICA FUME BASED GEOPOLYMER CONCRETE BEAM BEHAVIOR UNDER TORSION ................................................................. 732
A. Joshua Daniel, S. Sivakamasundari, A. Nishanth

NUMERICAL SIMULATION AND EXPERIMENTAL VALIDATION OF E-GLASS/EPOXY COMPOSITE MATERIAL UNDER BALLISTIC IMPACT OF 9 MM SOFT PROJECTILE ................................................................. 740
Venkataramudu Bodepati, K. Mogulanna, G. Seshahiri Rao, Madhu Vemuri

ROLE OF FABRIC GEOMETRY IN BALLISTIC PERFORMANCE OF FLEXIBLE ARMOUR PANELS ................................................................. 747
A. Laha, A. Majumdar, I. Biswas, S. K. Verma, D. Bhattacharjee

CONSTITUTIVE RELATIONS FOR Ti-6Al-4V HOT WORKING ................................................................. 755
Jyoti S. Jha, Asim Tewari, Sushil Mishra, Saraj Toppo

PROBABILITY-BASED STUDIES ON THE TENSILE STRENGTH OF GFRP, CFRP AND HYBRID COMPOSITES ................................................................. 763

A STUDY ON IMPACT STRENGTH CHARACTERISTICS OF COIR POLYESTER COMPOSITES ................................................................. 771
G. L. Eswara Prasad, B. S. Keerthi Gowda, R. Velurungan
### COMPARATIVE STUDY OF IMPACT STRENGTH CHARACTERISTICS OF TREATED AND UNTREATED SISAL POLYESTER COMPOSITES
G. L. Easwara Prasad, B. S. Keerthi Gowda, R. Velmurugan

### THREE DIMENSIONAL CRYSTAL PLASTICITY FINITE ELEMENT SIMULATION OF NOTCHED TENSILE SAMPLES OF PSEUDELASTIC NITI SHAPE MEMORY ALLOYS
Satyabrata Dhala, Sushil Mishra, Alankar Alankar

### PREDICTION OF MECHANICAL RESPONSE OF GEOMATERIALS USING AN ADVANCED ELASTO-PLASTIC CONSTITUTIVE MODEL
S. Singh, R. K. Kandasami, T. G. Murthy

### APPRAISAL OF STRAIN RATE SENSITIVITY OF POLYPROPYLENE NANOCOMPOSITES
Shishay Amare Gebremeskel, Neelanchali Asija, Hemant Choudha, Naresh Bhatnagar

### PROPERTIES OF NORMAL CONCRETE, SELF-COMPACTING CONCRETE AND GLASS FIBRE-REINFORCED SELF-COMPACTING CONCRETE: AN EXPERIMENTAL STUDY
Subhan Ahmad, Arshad Umar, Amjad Masood

### CHARACTERIZATION OF SELF-COMPACTING CONCRETE
Subhan Ahmad, Arshad Umar

### HIGH STRAIN RATE CHARACTERIZATION OF HIMALAYAN DOLOMITE
Sunita Mishra, Hemant Meena, Tanzsree Chakraborty, Pradeep Chandel, Manjit Singh

### COMPARISON OF HIGH-STRAIN RATE BEHAVIOUR OF OFHC COPPER USING DYNAMIC INDENTATION AND SPLIT HOPKINSON PRESSURE BAR TECHNIQUES
Rajnish Goyal, B. Venkataraman

### STRESS ANALYSIS OF FUNCTIONAL GRADED SANDWICH BEAMS SUBJECTED TO THERMAL SHOCK
Shashank Pandey, S. Pradyumna

### HIGH TEMPERATURE DYNAMIC CHARACTERIZATION OF AN ALUMINUM ALLOY WITH MODIFIED KOLSKY BAR...
V. Pare, P. Pathoor, K. N. Jonnalagadda, S. V. S. N. Murty

### THERMO-VISCOELASTIC INTERACTION IN A THREE-DIMENSIONAL PROBLEM SUBJECTED TO FRACTIONAL HEAT CONDUCTION
Sayak Chakravorty, Suman Ghosh, Abhik Sur

### SIMULATION OF ANISOTROPIC DEFORMATION BEHAVIOR OF PRESSURE TUBES DURING HIGH TEMPERATURE LOADING CONDITIONS
A. Syed, M. K. Samal, V. Bhasin

### SHAKEDOWN ANALYSIS OF THICK CYLINDER WITH A RADIAL OPENING WITH PRIMARY LOAD CYCLING IN-PHASE WITH SECONDARY LOAD
Abhishek K. Singh, I. A. Khan, K. Sharma, R. N. Sen, A. B. Mukherjee

### MODELING OF FIBRE-REINFORCED MAGNETO-THERMOELASTIC PLATE WITH HEAT SOURCES
Abhik Sur, M. Kanoria

### INVESTIGATIONS ON ANISOTROPY BEHAVIOR OF DUPLEX STAINLESS STEEL AISI 2205 FOR OPTIMUM WELD PROPERTIES
A. Vinod Jeyaraj, L. Ajay Kumar, C. R. Deepak

### ON HEATING OF THIN CIRCULAR ELASTIC-PLASTIC PLATE WITH THE YIELD STRESS DEPENDING ON TEMPERATURE...
Evgeniy Dats, Evgenii Murashkin, Nikita Studnik

### PREDICTING THE WARM FORMING BEHAVIOR OF WE43 AND AA5086 ALLOYS
Ishwar Kapoor, R. Ganesh Narayanan, Scott Taylor, Vit Janik, Richard Dashwood

### EFFECT OF SUSTAINED ELEVATED TEMPERATURE ON MECHANICAL BEHAVIOR OF REINFORCING BAR...
Mohammad Suhail Ahmad

### INFLUENCE OF TEMPERATURE ON THE WORKABILITY AND HARDNESS OF SINTERED AL-4%B4C IN UPSETTING TEST
R. Seetharam, S. Kannmani Subba, M. J. Davidson

### INVESTIGATION OF LUBRICATED DYE/BILLET INTERFACE IN HYDROSTATIC EXTRUSION PROCESS USING UPPER BOUND THEOREM
Pankaj Tomar

### EFFECT OF HOT ROLLING ON MECHANICAL PROPERTIES AND BALLISTIC PERFORMANCE OF HIGH NITROGEN STEEL
B. Bhav Singh, K. Siva Kumar, V. Madhu, R. Arockia Kumar

### A NUMERICAL STUDY ON IN-PLANE WAVE PROPAGATION IN MOORING CABLES
Lin Chen, Biswajit Basu
EFFECTS OF BAFFLES ON SLOSHING IMPACT PRESSURE OF A CHAMFERED TANK ....................................................... 940
Aditya Y. Joshi, Akash Bansal, Dibakar Rakshit

SIMULATION OF LAMB WAVE MODES CONVERSIONS IN A THIN PLATE FOR DAMAGE DETECTION .......................................................... 948
Yassin Alkassar, V. K. Agarwal, Eman Alshrihi

MECHANICAL BEHAVIOUR AND SURFACE PROFILE ANALYSIS OF AL6061 ALLOY PROCESSED BY EQUAL CHANNEL ANGULAR EXTRUSION ................................................................. 956
Ankit Sahai, K. Hans Raj, N. K. Gupta

EFFECT OF RIGID BOUNDARY ON THE PROPAGATION OF TORSIONAL SURFACE WAVES IN HETEROGENEOUS EARTH MEDIA ............................................. 964
Abhijit Pramanik, Shishir Gupta

TRANSFERENCE OF RAYLEIGH WAVES IN CORRUGATED ORTHOTROPIC LAYER OVER A PRE-STRESSED ORTHOTROPIC HALF-SPACE WITH SELF WEIGHT .............................................. 972
Abhinav Singhal, Sanjeev A. Sahu

TORSIONAL WAVE PROPAGATION IN AN INITIALLY STRESSED ANISOTROPIC HETEROGENEOUS CRUSTAL LAYER LYING OVER A VISCOELASTIC HALF-SPACE ....................................................... 980
Santimoy Kundu, Alka Kumari

INFLUENCE OF HETEROGENEITY AND INITIAL STRESS ON THE PROPAGATION OF RAYLEIGH-TYPE WAVE IN A TRANSVERSELY ISOTROPIC LAYER ................................................................. 988
A. K. Verma, A. Chattopadhyay, A. K. Singh

PROPAGATION OF LOVE WAVE IN VISCOELASTIC SANDY MEDIUM LYING OVER PRE-STRESSED ORTHOTROPIC HALF-SPACE .................................................. 996
Deepak Kr. Pandit, Santimoy Kundu

TORSIONAL WAVE PROPAGATION IN A SANDY LAYER UNDER INITIAL STRESS OVER AN INHOMOGENEOUS HALF-SPACE .......................................................... 1003
Rehena Sultana, Shishir Gupta

INFLUENCE OF SURFACE WAVES IN MAGNETOELASTIC HALF-SPACE WITH GRAVITY .................................................. 1014
Soniya Chaudhary, Sanjeev A. Sahu

ON RAYLEIGH WAVES IN SELF-REINFORCED LAYER EMBEDDED OVER AN INCOMPRESSIBLE HALF-SPACE WITH VARYING RIGIDITY AND DENSITY .................................................. 1021
Shishir Gupta, Mostaid Ahmed

EDGE WAVE PROPAGATION IN AN INITIALLY STRESSED DRY SANDY PLATE .......................................................... 1029
Santimoy Kundu, Manisha Maity

ON PHASE VELOCITY OF LOVE TYPE WAVES IN HETEROGENEOUS VISCO-ELASTIC MEDIUM .......................................................... 1034
Nidhi Dewangan, Sanjeev A. Sahu

EFFECT OF GRAVITY AND INITIAL STRESSES ON TORSIONAL SURFACE WAVES IN DRY SANDY MEDIUM UNDER RIGID LAYER .......................................................... 1042
Asit Kumar Gupta, Santimoy Kundu, Pulak Patra, Anup Kumar Mukhopadhyay

EFFECT OF GRAIN ORIENTATION ON HIGH STRAIN-RATE PLASTIC DEFORMATION .................................................. 1048
Rishabh D. Gula, Arnab J. Sharma, Pranaydhar Diwan, Prasenjit Khanikar

EFFECT OF INTERMEDIATE PRINCIPAL STRESS ON CYLINDRICAL TUNNEL IN AN ELASTO-PLASTIC ROCK MASS .......................................................... 1056
Aditya Singh, K. Seshagiri Rao, Ramanathan Ayyothiraman

LARGE ELASO-PLASTIC DEFLECTION OF MICRO-BEAMS USING STRAIN GRADIENT PLASTICITY THEORY .......................................................... 1064
Bhakti N. Patel, D. Pandit, S. M. Srinivasan

NUMERICAL PREDICTION OF INDENTATION BEHAVIOR OF METAL MATRIX COMPOSITES USING XFEM .......................................................... 1071
A. S. Shedbale, I. V. Singh, B. K. Mishra, S. K. Singh

LARGE ELASTO-PLASTIC DEFLECTION OF THIN BEAMS WITH ROLLER SUPPORT CONTACT .......................................................... 1079
D. Pandit, S. M. Srinivasan

IMPLEMENTATION OF YLD-96 PLASTICITY THEORY IN FORMABILITY ANALYSIS OF BI-AXIAL PRE-STRAINED STEEL SHEETS .......................................................... 1085
Shamik Basak, Sushanta Kumar Panda

CHABOCHÉ’S VISCOPLASTICITY MODEL FOR STRAIN – SPACE PLASTICITY .......................................................... 1093
A. N. Patil, B. M. Dawari

IMPLEMENTATION OF THEORY OF PLASTICITY FOR PARAMETRIC STUDY ON THE RELATION BETWEEN THICKNESS CHANGE AND CENTRAL DEFLECTION AND FRACTURE POINT LOCATION DURING SMALL PUNCH TEST .......................................................... 1101
Pradeep Kumar, B. K. Dutta, J. Chattopadhyay
ELASTO-PLASTIC DAMAGE ANALYSIS BASED ON STRAIN-SPACE PLASTICITY ................................................. 1108
P. D. Sathe, B. M. Davari

ELASTIC-PLASTIC BEHAVIOR OF AN ELLIPSOIDAL INCLUSION EMBEDDED IN AN
ELASTIC MATRIX .............................................................................................................................................. 1116
Prasun Jana

INFLUENCE OF FIBER REINFORCED CONCRETE ON PLASTIC BEHAVIOR ON EXTERIOR
BEAM COLUMN JOINT UNDER CYCLIC LOADING ......................................................................................... 1122
Raman Bharti, R. Siva Chidambaram, Naveen Kwatra

NUMERICAL INVESTIGATION OF RATCHETTING BEHAVIOUR IN RAIL STEEL UNDER
CYCLIC ROLLING-SLIDING CONTACT ............................................................................................................ 1130
Jay Prakash Selvastava, M V Ravi Kiran, P K Sarkar, V Ranjan

EFFECT OF ANISOTROPY, EARTH MAGNETISM AND IRREGULAR BOUNDARY ON
POLARIZED SHEAR WAVE PROPAGATION ....................................................................................................... 1138
Manoj Kumar Singh, Sanjeev A. Sahu

REFLECTION AND REFRACTION OF SH- WAVES IN AN ORTHOTROPIC LAYER
SANDWICHED BETWEEN TWO DISTINCT DRY SANDY HALF SPACE............................................................... 1146
Shishir Gupta, Smita, Snehamoy Pramanik

EFFECTS OF IRREGULARITY, POROSITY, REINFORCEMENT AND INITIAL STRESS ON
THE PROPAGATION OF SH-WAVE IN A SELF-REINFORCED LAYER LYING OVER AN
INITIALLY STRESSED POROUS HALF-SPACE ...................................................................................................... 1154
Shishir Gupta, Neelima Bhengra

PROPAGATION OF RAYLEIGH TYPE WAVE IN AN INITIALLY STRESSED VOIGT TYPE
VISCOELASTIC LAYER .................................................................................................................................... 1162
S. Saha, A. Chattopadhyay, A. K. Singh

ANISOTROPIC LARGE DEFORMATION AND FATIGUE DAMAGE OF RUBBER-FABRIC
BRAID LAYERED COMPOSITE HOSE .................................................................................................................. 1169
J. R. Cho

MULTI-SCALE COMPUTATIONAL APPROACH FOR MODELLING SPALLATION AT HIGH
STRAIN RATES IN SINGLE-CRYSTAL MATERIALS ............................................................................................. 1177

EFFECTS OF HYDRIDE ON CRACK PROPAGATION IN ZIRCALOY-4 .......................................................... 1185
Siddharth Suman, Mohd. Kaleem Khan, Manabendra Pathak, R. N. Singh

FRACTURE ANALYSIS OF THIN ALUMINUM SHEET BY J INTEGER AND C T O D
TECHNIQUE USING FEA VALIDATED BY EXPERIMENTAL ........................................................................... 1191
Rizwan Karim Shaikh, Tarique Khan, Shah Aqueel Ahmed

THE STUDY OF RELATIONSHIP BETWEEN FRACTURE ANGLES OF NATURAL FIBER
WITH ITS MICRO FIBRIL ANGLE ....................................................................................................................... 1198

MODELING THE MECHANICAL BEHAVIOR OF DYNAMICALLY DEFORMED CU USING
THEORIES OF CRYSTAL PLASTICITY .................................................................................................................. 1203
Sagar Chandra, M. K. Samal, V. M. Chavan, R. J. Patel

NONLINEAR FATIGUE CRACK GROWTH SIMULATIONS USING J-INTEGRAL
DECOMPOSITION AND XFEM ............................................................................................................................. 1209
Manish Kumar, A. S. Bhawal, I. V. Singh, B. K. Mishra, S. Ahmad, A. Venugopal Rao, Vikas Kumar

SIMULATION OF FRACTURE IN THE TAYLOR TEST USING CONTINUUM DAMAGE
MECHANICS MODEL ......................................................................................................................................... 1215
Manoj Kumar, P. M. Dixit

FATIGUE DAMAGE ASSESSMENT OF RC COLUMN USING PZT SENSORS ....................................................... 1223
Moin Ul Haq, S. Bhalla, Tabassum Naqvi

APPLICATION OF EFGM AND XFEM FOR FATIGUE CRACK GROWTH ANALYSIS OF
FUNCTIONALLY GRADED MATERIALS .................................................................................................................. 1231
Mohit Pant, Kamal Sharma, Somnath Bhattacharya

TENSILE FRACTURE AND COMPRESSION FAILURE BEHAVIOR OF CENOSPHERE
REINFORCED AA6061 METAL MATRIX COMPOSITE ....................................................................................... 1239
R. Illanjeyan, S. Gopalakannan

FRACTURE BEHAVIOR OF WELDED ALUMINUM ALLOY AT HIGH STRAIN RATES ....................................... 1246
Ravinder Singh, Sonika Chauhan, Prakash Chandra Gope

FATIGUE CRACK GROWTH SIMULATION FOR NON-HOMOGENOUS MATERIALS USING
COUPLED (FE-EFG) NON-LINEAR GRIDED TECHNIQUE .................................................................................. 1251
Kamal Sharma, Vivek Bhasin
EFFECTIVE CONSTITUTIVE RESPONSE OF SUSTAINABLE NEXT GENERATION INFRASTRUCTURE MATERIALS THROUGH HIGH-FIDELITY EXPERIMENTS AND NUMERICAL SIMULATION

Sumanta Das, Xianghui Xiao, Nikhilesh Chawla, Narayanan Neithalath

INTERFACE MECHANICS AND ITS CORRELATION WITH PLASTICITY IN POLYCRYSTALLINE METALS, POLYMER COMPOSITES, AND NATURAL MATERIALS

Devendra Verma, Chandra Prakash, Vikas Tomar

THE EFFECT OF NUMBER OF CORRUGATION ON CRASHWORTHINESS OF ALUMINUM CORRUGATED TUBE UNDER LATERAL LOADING

Hozhabr Mozafari, Arameh Eyvazian, Abdel Magid Hamouda

A REVIEW OF ANALYTICAL MICROMECHANICS MODELS ON COMPOSITE ELASTOPLASTIC BEHAVIOUR

Yanchao Wang, Zhengming Huang

OPTIMUM DESIGN FOR GRADED HONEYCOMB AS ENERGY ABSORBER DEVICE IN ELEVATOR CABIN

Mojtaba Ahsanfar, Seyed Ali Galehdari

DESIGN AND ANALYSIS OF A HELMET EQUIPPED WITH GRADED HONEYCOMB STRUCTURE UNDER IMPACT OF FLAT AND HEMI-SPHERICAL ANVILS

Farshid Kholoosi, Seyed Ali Galehdari

PART 3

CORNER MODELLING STRATEGY FOR FINITE ELEMENT IMPACT SIMULATION OF EXTRUDED SQUARE THIN–WALLED COLUMN

Annisa Jusuf, Tatagipta Dirgentara, Leonardo Gunawan, Sigit Puji Santosa, Ichesan Setya Putra

EXPERIMENTAL STUDY OF CORRUGATED METAL–COMPOSITE TUBES UNDER AXIAL LOADING

Arameh Eyvazian, Hozhabr Mozafari, Abdel Magid Hamouda

DAMAGE TO SHALLOW TUNNELS UNDER STATIC AND DYNAMIC LOADING

Swapnil Mishra, K. S. Rao, N. K. Gupta, Ankeh Kumar

TWO-DIMENSIONAL FINITE ELEMENT BASED PARAMETRIC ANALYSIS OF SOUTH PORTAL SLOPE, ROHTANG TUNNEL, INDIA

K. S. Rao, Tarun Singh

BENDING ANALYSIS OF LAMINATED AND SANDWICH COMPOSITE REISSNER-MINDLIN PLATES USING NURBS-BASED ISOGEOOMETRIC APPROACH

Abha Gupta, Anup Ghosh

IMPACT ANALYSIS OF FIGHTER JET NEAR THE NUCLEAR CONTAINMENT BASE

M. R. Sadique, M. A. Iqbal, P. Bhargava

BEHAVIOR OF POLYURETHANE FOAM-FILLED STEEL HAT SECTIONS UNDER AXIAL LOADING: TESTING AND SIMULATION

B. Haorongbam, A. Deb, N. K. Gupta

ANALYSIS OF STRUCTURAL CONFIGURATIONS FOR ASSESSMENT OF CRASHWORTHINESS

T. J. Reddy, Y. V. D. Rao, V. Narayananmurthy

NUMERICAL SIMULATION OF CRUSHING AND ENERGY ABSORPTION BEHAVIOR OF TWISTED TUBES UNDER IMPACT LOADING

M. D. Goel, Aparna Pandharkar, M. S. Hora

COLLAPSE BEHAVIOR AND ENERGY ABSORPTION IN ELLIPTICAL TUBES WITH FUNCTIONALLY GRADED CORRUGATIONS

Sharad Rawat, Anirudh Narayanan, Theerthana Nagendirar, A. K. Upadhyay

MULTIOBJECTIVE OPTIMIZATION OF FUNCTIONALLY CORRUGATED TUBES FOR IMPROVED CRASHWORTHINESS UNDER AXIAL IMPACT

Sharad Rawat, Anirudh Narayanan, A. K. Upadhyay, K. K. Shukla

COMPARATIVE STUDY OF TRIGGER CONFIGURATION FOR ENHANCEMENT OF CRASHWORTHINESS OF AUTOMOBILE CRASH BOX SUBJECTED TO AXIAL IMPACT LOADING

N Nasir Hussain, Srinivasa Prakash Regalla, Tendliari V Daseswara Rao

NEW INSIGHT TO IMPROVE ENERGY ABSORPTION CHARACTERISTICS OF LONG CIRCULAR TUBES WITH STIFFENERS AS CONTROLLABLE ENERGY-DISSIPATING DEVICES

M. Nalla Mohamed, A. Praveen Kumar
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUMERICAL AND EXPERIMENTAL STUDY OF THE EFFECT OF ORIENTATION AND</td>
<td>1407</td>
</tr>
<tr>
<td>STACKING SEQUENCE ON PETALLING OF COMPOSITE CYLINDRICAL TUBES UNDER</td>
<td></td>
</tr>
<tr>
<td>AXIAL COMPRESSION</td>
<td></td>
</tr>
<tr>
<td>M. Nalla Mohamed, A. Praveen Kumar</td>
<td></td>
</tr>
<tr>
<td>CRUSH PERFORMANCE ANALYSIS OF COMBINED GEOMETRY TUBES UNDER AXIAL</td>
<td>1415</td>
</tr>
<tr>
<td>COMpressive LOADING</td>
<td></td>
</tr>
<tr>
<td>A. Praveen Kumar, M. Nalla Mohamed</td>
<td></td>
</tr>
<tr>
<td>EFFECT OF SPACERS ON ULTIMATE STRENGTH AND BEHAVIOR OF COLD-FORMED</td>
<td>1423</td>
</tr>
<tr>
<td>STEEL BUILT-UP COLUMNS</td>
<td></td>
</tr>
<tr>
<td>S. Vijayanand, M. Anbarasu</td>
<td></td>
</tr>
<tr>
<td>STUDY ON FLEXURAL BEHAVIOR OF STEEL FIBER RC BEAMS CONFINED WITH</td>
<td>1431</td>
</tr>
<tr>
<td>BIAxIAL GEO-GRID</td>
<td></td>
</tr>
<tr>
<td>S. Sivakamasundari, A. Joshua Daniel, Arun Kumar</td>
<td></td>
</tr>
<tr>
<td>STUDY OF TOOL PENETRATION BEHAVIOR IN DISSIMILAR AL5083/C10100 FRICTION STIR SPOT WELDS</td>
<td>1439</td>
</tr>
<tr>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>FATIGUE DAMAGE ESTIMATION THROUGH CONTINUUM DAMAGE MECHANICS</td>
<td>1567</td>
</tr>
<tr>
<td>Abhinav Gautam, K. P. Ajit, P. K. Sarkar</td>
<td></td>
</tr>
<tr>
<td>CONDITION MONITORING OF GEARBOX USING EXPERIMENTAL INVESTIGATION OF</td>
<td>1575</td>
</tr>
<tr>
<td>ACOUSTIC EMISSION TECHNIQUE</td>
<td></td>
</tr>
<tr>
<td>Ram Bihari Sharma, Anand Parey</td>
<td></td>
</tr>
<tr>
<td>3D MODELLING OF GROUND SURFACE VIBRATION INDUCED BY UNDERGROUND TRAIN</td>
<td>1580</td>
</tr>
<tr>
<td>MOVEMENT</td>
<td></td>
</tr>
<tr>
<td>D. V. Singh, Y. Selb</td>
<td></td>
</tr>
<tr>
<td>INVESTIGATION OF EFFECT OF MATERIAL PROPERTIES ON FORCES DURING FLOW</td>
<td>1587</td>
</tr>
<tr>
<td>FORMING PROCESS</td>
<td></td>
</tr>
<tr>
<td>Ravi J. Bhatt, Harit K. Rawal</td>
<td></td>
</tr>
<tr>
<td>NUMERICAL SIMULATION OF ANTI-RAM BOLLARD UNDER VEHICLE IMPACT</td>
<td>1595</td>
</tr>
<tr>
<td>M. D. Goel, Pankaj Panwar</td>
<td></td>
</tr>
<tr>
<td>DESIGN AND ANALYSIS OF WING STRUCTURES OF MICRO AIR VEHICLES</td>
<td>1602</td>
</tr>
<tr>
<td>Mannohman Dass Goel, Umang Rawat</td>
<td></td>
</tr>
<tr>
<td>FABRICATION AND HARDNESS ANALYSIS OF F-MWCNTS REINFORCED ALUMINIUM</td>
<td>1611</td>
</tr>
<tr>
<td>NANOCOMPOSITE</td>
<td></td>
</tr>
<tr>
<td>Md Zakir Hussain, Urfi Khan, A. K. Chanda, Rituraj Jangid</td>
<td></td>
</tr>
<tr>
<td>GEOMETRICALLY NONLINEAR FIRST PLY FAILURE LOADS OF LAMINATED</td>
<td>1619</td>
</tr>
<tr>
<td>COMPOSITE CONOIDAL SHELLS</td>
<td></td>
</tr>
<tr>
<td>Kaustav Bakshi, Dipankar Chakravorty</td>
<td></td>
</tr>
<tr>
<td>DYNAMIC BEHAVIOUR OF FOAM AND SANDWICH PANELS UNDER SHOCK WAVE</td>
<td>1627</td>
</tr>
<tr>
<td>LOADING</td>
<td></td>
</tr>
<tr>
<td>C. Jayarami Reddy, V. Madhu</td>
<td></td>
</tr>
<tr>
<td>STRENGTH PREDICTION OF ADHESIVELY BONDED JOINTS USING PLASTIC ZONE</td>
<td>1635</td>
</tr>
<tr>
<td>SIZE CRITERION</td>
<td></td>
</tr>
<tr>
<td>P. K. Sahoo, B. Dattaguru, C. M. Manjunatha</td>
<td></td>
</tr>
<tr>
<td>FAILURE ANALYSIS OF CIVIL ENGINEERING COMPOSITE SHELL ROofs</td>
<td>1642</td>
</tr>
<tr>
<td>Arghya Ghosh, Dipankar Chakravorty</td>
<td></td>
</tr>
<tr>
<td>AN EXPERT SYSTEM OF DIE DESIGN FOR MULTI STAGE DEEP DRAWING PROCESS</td>
<td>1650</td>
</tr>
<tr>
<td>Mallika R. Bhan, Sanjay H. Buch</td>
<td></td>
</tr>
<tr>
<td>FINITE ELEMENT ANALYSIS OF HUMAN FRACTURED FEMUR BONE IMPLANTATION</td>
<td>1658</td>
</tr>
<tr>
<td>WITH PMMA THERMOPLASTIC PROSTHETIC PLATE</td>
<td></td>
</tr>
<tr>
<td>Ajay Dhanopia, Manish Bhargava</td>
<td></td>
</tr>
<tr>
<td>AN EXPERIMENTAL INVESTIGATION ON PHYSICAL AND MECHANICAL PROPERTIES</td>
<td>1666</td>
</tr>
<tr>
<td>OF CONCRETE WITH THE REPLACEMENT OF FINE AGGREGATE BY POLY VINYL</td>
<td></td>
</tr>
<tr>
<td>CHLORIDE AND GLASS WASTE</td>
<td></td>
</tr>
<tr>
<td>Harshad G. Patel, Sejal P. Dalal</td>
<td></td>
</tr>
<tr>
<td>INVESTIGATION OF THE STRESSES INDUCED IN CRANK SHAFT AISI E4340 FORGED</td>
<td>1672</td>
</tr>
<tr>
<td>STEEL</td>
<td></td>
</tr>
<tr>
<td>Pramod Kumar Gupta, Ram Ranjan Sahu</td>
<td></td>
</tr>
<tr>
<td>DETERMINATION OF MODE-I FRACTURE TOUGHNESS OF EPOXY-GLASS FIBRE</td>
<td>1678</td>
</tr>
<tr>
<td>COMPOSITE LAMINATE</td>
<td></td>
</tr>
<tr>
<td>D. Srikanth Rao, P. Ravinder Reddy, Sriram Venkatesh</td>
<td></td>
</tr>
<tr>
<td>TENSILE AND WATER ABSORPTION PROPERTIES OF FRP COMPOSITE LAMINATES</td>
<td>1684</td>
</tr>
<tr>
<td>WITHOUT VOIDS AND WITH VOIDS</td>
<td></td>
</tr>
<tr>
<td>Goutham Reddy, Yamshi Krishna, K. Shanker</td>
<td></td>
</tr>
<tr>
<td>NONLINEAR FINITE ELEMENT ANALYSIS TO THE CIRCULAR CFST STUB COLUMNS</td>
<td>1692</td>
</tr>
<tr>
<td>Yahia R. Abbas</td>
<td></td>
</tr>
<tr>
<td>LARGE DEFORMATION STUDIES ON COMBINED SHELL STRUCTURES</td>
<td>1700</td>
</tr>
<tr>
<td>Pramod Kumar Gupta, Ram Ranjan Sahu</td>
<td></td>
</tr>
<tr>
<td>A STUDY ON ANALYSIS OF COLLAPSE OF METALLIC SHELLS HAVING DOME-CONE</td>
<td>1708</td>
</tr>
<tr>
<td>SHAPE</td>
<td></td>
</tr>
<tr>
<td>P. K. Gupta</td>
<td></td>
</tr>
<tr>
<td>DYNAMIC LOAD CAPACITY OF THE STEEL LATTICE GIRDER UNDER CYCLE IMPULSE</td>
<td>1716</td>
</tr>
<tr>
<td>LOAD</td>
<td></td>
</tr>
<tr>
<td>Aneta Brzuzy</td>
<td></td>
</tr>
<tr>
<td>EXPERIMENTAL INVESTIGATION OF CFST-RC BRIDGE PIERS UNDER CYCLIC LOADING</td>
<td>1723</td>
</tr>
<tr>
<td>Raghabendra Yadav, Baocun Chen, Huihui Yuan, Zhibin Lian</td>
<td></td>
</tr>
<tr>
<td>ANALYTICAL BEHAVIOR OF CFST BRIDGE PIERS UNDER CYCLIC LOADING</td>
<td>1731</td>
</tr>
<tr>
<td>Raghabendra Yadav, Baocun Chen, Huihui Yuan, Zhibin Lian</td>
<td></td>
</tr>
</tbody>
</table>
SEISMIC VULNERABILITY OF URBAN BRIDGES DUE TO LIQUEFACTION USING NONLINEAR PUSHOVER ANALYSIS AND ASSESSING PARAMETERS FOR DAMAGE DETECTION ................................................................. 1739
Kashif Quamar Inguahli, Rajeev Kumar Garg, K. Balaji Rao

SITE SPECIFIC SEISMIC INPUT FOR STRUCTURES ON HILL SLOPES .................................................................................................................. 1747
K. Seshagiri Rao, Rebecca Ramsunachhuan

A NEW CONTINUUM BASED MODEL FOR THE SIMULATION OF A SEISMICALLY INDUCED LARGE-SCALE ROCKSLIDE ................................................................. 1755
D. Shirole, C. Moormann, K. G. Sharma

SEISMIC PERFORMANCE OF A HERITAGE SCHOOL BUILDING ................................................................. 1763
Kamran, Shakeel Ahmad, Rehan A. Khan

EVALUATING THE EFFECT OF STRONG EARTHQUAKE ON SLOPE INSTABILITY .................................................................................................................. 1771
Mohin Emamul Zaei, K. Seshagiri Rao

COMPUTATION OF STRESSES IN CONCRETE GRAVITY DAM UNDER SEISMIC LOADING THROUGH ANN AND FEM .................................................................................................................. 1779
Mohd. Saqib, Md. Imteyaz Ansari

A COMPARATIVE STUDY OF SEISMIC PERFORMANCE OF RC FRAMES WITH MASONRY INFILLS ........................................................................................................................................... 1784
Romanbabu M. Oinam, Ruban Sugumar, Dipti Ranjan Sahoo

SEISMIC RESPONSE OF RC FRAMED BUILDINGS RESTING ON HILL SLOPES ................................................................................................................................. 1792
Zaiz Mohammad, Abdul Baqi, Mohammed Arif

USE OF CO-POLYMER OF STYRENE BUTADIENE RUBBER-A SEISMICALLY INNOVATIVE APPROACH TOWARDS ENERGY DISSIPATION .................................................................................................................. 1800
Amit Goyal, Pankaj Agarwal

DEVELOPMENT AND ANALYSIS OF AN EXPERIMENTAL SETUP OF SPRING – MASS – DAMPER SYSTEM ................................................................................................................................. 1808
Bhargav Kumar Lakhani, Himansh Yadav

INFLUENCE OF GAP SIZE ON THE DYNAMIC BEHAVIOR OF PERFORATED TUBE UNDER SEISMIC EXCITATION ................................................................................................................................. 1816
V. Chaudhary, J. K. Pandey, Harish Kumar, S. M. Ingole, S. F. Sinha, A. K. Balasubrahmanian, U. C. Mukti

COMPARATIVE STUDY OF SMART BASE-ISOLATION USING FUZZY CONTROL AND NEURAL NETWORK ................................................................................................................................. 1825
Megha T. Lakhani, Devesh P. Soni

ANALYSIS OF EXISTING MASONRY HERITAGE BUILDING SUBJECTED TO EARTHQUAKE LOADING ........................................................................................................................................... 1833
M. Shariq, S. Haseeb, M. Arif

PERFORMANCE EVALUATION OF 9 STOREY RC BUILDING LOCATED IN NORTH GOA ................................................................................................................................. 1841
Premodini Naik, Satish Annigeri

COMPARATIVE PERFORMANCE EVALUATION OF STEEL COLUMN BUILDING & CONCRETE FILLED TUBE COLUMN BUILDING UNDER STATIC AND DYNAMIC LOADING ................................................................................................................................. 1847
Ankur Tailor, Sejal P. Dalal, Atul K. Desai

EVALUATION OF RESPONSE REDUCTION FACTOR OF A REINFORCED CEMENT CONCRETE BUILDING DESIGNED BY PERFORMANCE BASED PLASTIC DESIGN METHOD AND LIMIT STATE DESIGN METHOD ................................................................................................................................. 1854
Kunal P. Shukla, Sejal P. Dalal

EFFECT OF INCREASING DUCTILITY FACTORS ON THE PERFORMANCE OF A STEEL MOMENT RESISTING FRAME DESIGNED BY THE PERFORMANCE BASED PLASTIC DESIGN METHOD ATTUNED WITH INDIAN CODE OF PRACTICE ................................................................................................................................. 1862
Sejal P. Dalal, Purvang D. Dalal, Atul K. Desai

RESPONSE OF THE DOUBLE CONCAVE FRICITION PENDULUM SYSTEM UNDER TRIAXIAL GROUND EXCITATIONS ................................................................................................................................. 1870
Vrunda M. Shah, D. P. Soni

NON LINEAR DYNAMIC ANALYSIS OF CYLINDRICAL ROLLER BEARING ........................................................................................................................................... 1878
H. K. Yadav, D. H. Pandya

EFFECTS OF RE-ENTRANT CORNER ON SEISMIC PERFORMANCE OF HIGH CONCRETE GRAVITY DAMS ........................................................................................................................................... 1886
Md. Imteyaz Ansari, Pankaj Agarwal

DEFORMATION RESPONSE OF TITANIUM ALLOY UNDER STATIC AND DYNAMIC LOADING ........................................................................................................................................... 1894
Sudhanshu Sharma, Anuradha Nayak Majilla, Y. M. Chavan, D. Chandra Fernando, R. J. Patel, S. N. Babu

SAFETY ASSESSMENT OF COMPOSITE ARMOR UNDER BALLISTIC IMPACT ........................................................................................................................................... 1901
Shivdayal Patel, Suhail Ahmad, Puneet Mahajan