



The 12th International Symposium on Plasticity and Impact Mechanics
 IMPLAST 2019, Busan, Republic of Korea, 29 Sep. 2019 – 3 Oct. 2019.
 Final Program at a Glance (www.implast2019.info)

※ The program may be subjected to a change.

Venue: Convention Hall (Rooms 101, 102 & 103), BEXCO, #55 APEC-ro, Haeundae-gu, Busan, Republic of Korea

	Monday Sep 30		Tuesday Oct 1		Wednesday Oct 2		Thursday Oct 3
	Rooms 101 & 102	Room 103	Room 101	Room 102	Room 101	Room 102	
7:30							Technical Tour (Meet at 7:15 in front of the Convention Hall)
9:00							
10:00			TS5 (M)	TS6 (IC)	TS13 (S)	TS14 (FB)	
10:30	On-Site Registration		Break		Break		
11:00							
12:30	Opening and Keynote speeches (Room 101 & 102)		TS7 (PF)	TS8 (IC)	TS15 (S)	TS16 (FB)	
14:00	Lunch (Exhibition Center 1, B1)		Lunch (Exhibition Center 1, B1)		Lunch (Exhibition Center 1, B1)		
15:30							
16:00							
17:30							
18:00							
18:30			Topic Code				
21:00			M: Materials IC: Impact/Collision PF: Plasticity/Fracture S: Structures DA: Dynamic actions FB: Fire/Blast VT: Various topics		Banquet (Room 106-108)		



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Day 0: Sunday, 29 September 2019

15:30-17:30 On-site Registration (Reception in front of Rooms 101 & 102 of the Convention Hall)

Day 1: Monday, 30 September 2019

10:00-11:00 On-site Registration (Reception in front of Rooms 101 & 102 of the Convention Hall)

11:00-12:30 Opening and keynote speeches (Rooms 101 & 102) (Chair: Prof. Jeom Kee Paik)

- **Opening** by Prof. Jeom Kee Paik, Chairman of IMPLAST 2019
- **IMPLAST symposia and their contributions – a perspective** by Prof. Narinder K. Gupta, Indian Institute of Technology Delhi
- **Recent advances and future trends on new materials** by Prof. Kwang Ho Kim, Pusan National University
- **Recent advances and future trends on nondestructive testing** by Prof. Youn Ho Cho, Pusan National University

12:30-14:00 Lunch (Lunch ticket should be purchased at the restaurant. Registration package includes the ticket.)

14:00-15:30

Technical Session 1 (Materials) (Rooms 101 & 102) (Chair: Prof. R. Velmurugan)

- **High strain rate studies of glass/epoxy and carbon/epoxy composites using DIC** by K. Naresh, K. Shankar, R. Velmurugan, Narinder K. Gupta
- **Experimental work for mechanical properties of cold-rolled St-37 steel at high strain rates by considering the anisotropy effect** by Rilis Eka Perkasa, Leonardo Gunawan, Sigit Puji Santosa, Afdhal, Tatacipta Dirgantara
- **Characterization of soft tissues: overview, challenges and remedies** by S.H. Kadhane, H.N. Warhatkar

Technical session 2 (Impact/Collision) (Room 103) (Chair: Prof. Evgenii Murashkin)

- **On the detachment path of an impulsively loaded mild steel plate from its support** by Dario Schiano Moriello, Ryo Torii, PJ Tan
- **Comparison of ballistic resistance of armox 500T steel and 7075-T651 aluminium plate against 12.7 API projectiles** by K. Senthil, Mohd Ashraf Iqbal, Narinder K. Gupta
- **Crushing response of cap and open end hybrid frusta with and without circular cut outs** by Gaurav Tiwari, Vivek Patel, Ravikumar Dumpala

15:30-16:00 Break

16:00-17:30

Technical Session 3 (Materials) (Rooms 101 & 102) (Chair: Prof. K. Senthil)

- **Characterization of soft tissue using inverse finite element analysis** by S.H. Kadhane, H.N. Warhatkar
- **Deformation behaviours of Al2014-T6 at different strain rates and temperatures** by Gyan Prakash, N.K. Singh, Narinder K. Gupta
- **A Study on occurrence of brittle fracture of steel notched specimens under cyclic loading with different fracture toughness** by Fumiya Mastuda, Tsutomu Iwashita, Koji Azuma

Technical Session 4 (Impact/Collision) (Room 103) (Chair: Prof. Guoxing Lu)

- **Influence of offset and obliquity of the projectile on the ballistic response of the thin hemispherical shell**
by Gaurav Tiwari, N. Khairi, Mohd Ashraf Iqbal, Pramod Kumar Gupta
- **Penetration performance of origami sandwich panels** by Jianjun Zhang, Guoxing Lu
- **Modeling and characterization of lithium-ion NCA battery for safety and crashworthiness application** by Hafiz Fadillah, Sigit Puji Santosa, Annisa Jusuf, Agus Purwanto
- **Aircraft impact analysis of thin-walled protective structures** by M.R. Sadique, Mohd Ashraf Iqbal, Narinder K. Gupta



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Day 2: Tuesday, 1 October 2019

9:00-10:30

Technical Session 5 (Materials) (Room 101) (Chair: Prof. Fang Wang)

- **Cold Programming of Epoxy Based Shape Memory Polymer** by Kartikey Shahi, Boomurugan, R. Velmurugan, Ranjith Mohan, K.V.N. Gopal
- **Mechanical Characterization of glass/epoxy nanocomposite laminated aluminium hybrid plate** by M. Vijayan, V. Selladurai, G. Balaganesan, K. Marimuthu
- **Time-dependent deformation behavior of PMMA frustums designed for deep-sea manned cabin** by Fang Wang, Minqi Wang, Wuwu Wang, Zhe Jiang, Weicheng Cui

Technical Session 6 (Impact/Collision) (Room 102) (Chair: Dr. Sigit Puji Santosa)

- **Dynamic responses of thin-walled aluminum plate with central prefabricated crack induced by underwater shock loadings** by Xiongwen Jiang, Dacheng Li, Tuo Chen, Yu Tang, Zitao Guo, Wei Zhang
- **Influence of manufacturing process on the crashworthiness performance of double-hat multi-corner crash box** by Annisa Jusuf, Genio Odi Putra, Sigit Puji Santosa, Leonardo Gunawan
- **Design and optimization of crashworthy components based on lattice structure configuration** by Alvian Iqbal Hanif Nasrullah, Sigit Puji Santosa, Tatacipta Dirgantara

10:30-11:00 Break

11:00-12:30

Technical Session 7 (Plasticity/Fracture) (Room 101) (Chair: Prof. Jeom Kee Paik)

- **Characterization of ductile fracture criterion for API X80 pipeline steel based on a phenomenological approach** by Peihua Han, Shuai Yuan, Peng Cheng, Yong Bai
- **Experimental study on the failure modes of circumferentially corrugated cylinders under external hydrostatic pressure** by Wen-xian Tang, Shan Zhang, Jian Zhang, Zheng Tang
- **Effects of naturally progressed corrosion on the mechanical properties of steel: An experimental study** by Abhishek Rajput, Jae Hyeong Park, Sung Hwan Noh, Jeom Kee Paik

Technical Session 8 (Impact/Collision) (Room 102) (Chair: Prof. Mohd Ashraf Iqbal)

- **Computational models for the structural crashworthiness analysis of offshore platforms in collisions with offshore supply vessel** by M.P. Mujeeb-Ahmed, Serdar Turgut Ince, Jeom Kee Paik
- **Effect of eccentricity of impact load on ballistic behaviour of ceramic/metallic armor: A numerical investigation** by M.K. Khan, Mohd Ashraf Iqbal, V. Bratov, N.K. Gupta, N.F. Morozov
- **Dynamic response of B4C and SiC ceramics under uniaxial compression** by J. Venkatesan, Mohd Ashraf Iqbal

12:30-14:00 Lunch (Lunch ticket should be purchased at the restaurant. Registration package includes the ticket.)

14:00-15:30

Technical Session 9 (Plasticity/Fracture) (Room 101) (Chair: Prof. Masahiro Nishida)

- **Mesh size and stress triaxiality influence on fracture strain in tensile tests of aluminum alloy plates** by Slim Djebien, Masahiro Nishida, Koki Yamada, Toru Tsuda
- **Fracture response of steel pipelines under combined tension and torsion** by Yong Bai, Mohsen Saneian, Peihua Han
- **Fracture response of steel pipelines under combined tension and bending** by Yong Bai, Mohsen Saneian, Peihua Han

Technical Session 10 (Impact/Collision) (Room 102) (Chair: Prof. Vinod Kushvaha)

- **Effect of using nano silica as a secondary reinforcement on tensile, flexure and ballistic impact in glass fiber reinforced epoxy composites** by A. Sharma, G. Balaganesan, F. Sofi, Vinod Kushvaha
- **Finite element modeling of load carrying capacity of concrete filled unplasticized poly-vinyl chloride (UPVC) tubes exposed to marine environment** by Pramod Kumar Gupta, V.K. Verma
- **Collision risk assessment of a fixed type offshore platform with an offshore supply vessel** by M.P. Mujeeb-Ahmed, Joem Kee Paik

15:30-16:00 Break

16:00-17:30

Technical Session 11 (Plasticity/Fracture) (Room 101) (Chair: Prof. Joon Mo Choung)

- **On the modeling of ductile fracture in ship structures with shell elements at sub-zero temperatures** by Burak Can Cerik, Sung Ju Park, Joon Mo Choung
- **Study of shear failure in concrete filled unplasticized polyvinyl (UPVC) tubular columns** by Pramod Kumar Gupta, V.K. Verma
- **Strain rate dependent ductile fracture of AA7075-T6 sheet** by Taamjeed Rahman, Ping Zhou, Kyle Daun, Cliff Butcher, Michael J. Worswick

Technical Session 12 (Dynamic actions) (Room 102) (Chair: Prof. Jeom Kee Paik)

- **Brittle-Ductile transition of anisotropic rocks** by Ankesh Kumar, Swapnil Mishra, Seshagiri K. Rao
- **Effect of cover depth on deformation in D-shaped shallow tunnel under impact load** by R. Dhamne, Swapnil Mishra, Ankesh Kumar, Seshagiri K. Rao
- **Effect of dynamic loads on tunnels in soft rock** by Swapnil Mishra, Ankesh Kumar, Seshagiri K. Rao, Narinder K. Gupta
- **Nonlinear finite element method modelling for the seismic response analysis of ship-shaped offshore structures** by Jae Hyeong Park, Dong Hun Lee, Junbo Jia, Jeom Kee Paik



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Day 3: Wednesday, 2 October 2019

09:00-10:30

Technical Session 13 (Structure) (Room 101) (Chair: Prof. Jung Kwan Seo)

- **On the prediction of initial deformations on welded stiffened structures, computational modeling and large scale physical model testing** by Myung Su Yi, Dong Hun Lee, Sung Hwan Noh, Hyun Ho Lee, Jeom Kee Paik
- **On the prediction of residual stresses on welded stiffened structures, computational modeling and large scale physical model testing** by Myung Su Yi, Dong Hun Lee, Sung Hwan Noh, Dong Houi Seo, Jeom Kee Paik
- **Some studies on the tube contraction using a conical-cylindrical die** by Pramod Kumar Gupta, Ram Ranjan Sahu

Technical Session 14 (Fire/Blast) (Room 102) (Chair: Prof. Yeon Chul Ha)

- **Shear capacity of unreinforced concrete joints after elevated temperatures** by Subhan Ahmad, Pradeep Bhargava, Ajay Chourasia
- **Large scale physical model testing on the collapse of a stiffened plate structure in fires** by Jeom Kee Paik, Min Gyu Ryu, Kunhou He, Dong Hun Lee, Seung Yul Lee, Dae Kyeom Park, Giles Thomas
- **Computational models for the fire collapse analysis of steel stiffened plate structures with or without passive fire protection** by Min Gyu Ryu, Kunhou He, Dong Hun Lee, Sung-In Park, Giles Thomas, Jeom Kee Paik

10:30-11:00 Break

11:00-12:30

Technical Session 15 (Structure) (Room 101) (Chair: Prof. Pramod Kumar Gupta)

- **Finite element analysis of flexible pipes during reeling operation** by Pan Fang, Yifan Gao, Peng Cheng, Yong Bai
- **Large deformation of square plates under pulse loading by the combination of saturated analysis and membrane factor method** by Ling Zhu, Lanren Tian, Faliang Chen, T.X. Yu
- **Finite element analysis of tensile behaviour of glass fiber composites for varying strain rates** by G. Navya, R. Jayaganthan, R. Velmurugan, Narinder K. Gupta

Technical Session 16 (Fire/Blast) (Room 102) (Chair: Prof. Raj Das)

- **An improved method for quantitative risk assessment of unconfined offshore installations subjected to gas explosions** by Yuxin Xu, Yong Bai, Jeom Kee Paik, Weishun Dai
- **Numerical simulation and experimentation on the response of CFRP composite plate under blast impact loading** by Gunaryo, Rully O. Rialto, Bambang K. Hadi, Sigit P. Santoso, Yayat Ruyat
- **Explosive blast response of sandwich composites** by A. Gargano, R. Das, A.P. Mouritz

12:30-14:00 Lunch (Lunch ticket should be purchased at the restaurant. Registration package includes the ticket.)

14:00-15:30

Technical Session 17 (Structure) (Room 101) (Chair: Prof. Yong Bai)

- **State of the art bending resistance models of girders with corrugated webs** by Qazi Inaam, Akhil Upadhyay
- **Mechanical behavior of thin cylindrical shells under combined axial compression and bending** by Shan Jin, Peng Cheng, Yong Bai
- **Thermal and residual stresses computation under various yield criteria in AM fabricated parts** by Evgenii V. Murashkin, E.P. Dats

Technical Session 18 (Various topics) (Room 102) (Chair: Prof. K.S. Rao)

- **Stress relaxation and creep in additive manufacturing parts produced by photopolymerization technique** by Evgenii V. Murashkin, A.L. Popov, A.M. Bururuev, V.M. Kozintsev, D.A. Chelubeev, A.V. Chentsov
- **On mechanical simulation of atherosclerotic growth of arterial wall** by Evgenii V. Murashkin, N.E. Stadnik
- **Study on the vessel size constraint effects on the cavity expansion behaviours induced by high-speed projectile water entry** by Zitao Guo, Tuo Chen, Zhao Guo, Xiongwen Jiang, Wei Zhang

15:30-16:00 Break

16:00-18:00

Technical Session 19 (Structure) (Room 101) (Prof. Bong Ju Kim)

- **Large scale physical model testing on the ultimate strength of a steel stiffened plate structure under cyclic compressive loading** by Jeom Kee Paik, Dong Hun Lee, Sung Hwan Noh, Dae Kyeom Park, Jonas W. Ringsberg
- **Computational models for the ultimate strength analysis of steel stiffened plate structures under monotonic and cyclic compressive loadings** by Dong Hun Lee, Sung Hwan Noh, Jonas W. Ringsberg, Jeom Kee Paik
- **Large scale physical model testing on the ultimate compressive strength of a steel stiffened plate structure at cryogenic condition** by Jeom Kee Paik, Dong Hun Lee, Sung Hwan Noh, Dae Kyeom Park, Jonas W. Ringsberg
- **Computational models for the ultimate compressive strength analysis of a steel stiffened plate structure at cryogenic condition** by Dong Hun Lee, Sung Hwan Noh, Jonas W. Ringsberg, Jeom Kee Paik

Technical Session 20 (Various topics) (Room 102) (Chair: Prof. Md. Rehan Sadique)

- **Nonlinear performance evaluation of base isolated structure using optimized number of base isolators** by Ahmed Bilal, Pankaj Agarwal, Md. Rehan Sadique
- **Numerical investigation of bionic thin-walled structure under axial loading** by Arameh Eyvazian, Abdel Magid Hamouda
- **Edge wave propagation in a viscoelastic orthotropic functionally graded material plate** by D.K. Pandit, S. Kundu
- **Large scale physical model testing on the collapse of a steel stiffened plate structure with passive fire protection in fires** by Jeom Kee Paik, Min Gyu Ryu, Kunhou He, Dong Hun Lee, Seung Yul Lee, Dae Kyeom Park, Giles Thomas

18:30-21:00 Banquet (Convention Hall Rooms 106-108, Banquet ticket should be purchased. Registration package includes the ticket.)

Day 4: Thursday, 3 October 2019

7:30-19:00 Technical and Cultural Tour (KOSORI Test Facility and Hadong)

*** Prior booking is required. Ticket can be purchased at the on-site registration desk as far as coach seats are available.**

*** Meet at 7:15 in front of the Convention Hall.**