

Determination of Mode I Stress Intensity Factor for a crack propagating in a micro-cracked plate

T. Gortsas⁽¹⁾, I. Diakides⁽¹⁾, S.V. Tsinopoulos⁽²⁾

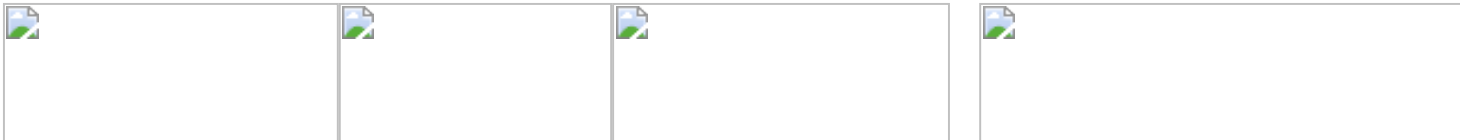
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In the present work, the problem of a main crack surrounded by a large number of microcracks and subjected to a thermoelastic loading is solved numerically via an advanced Boundary Element Method (BEM). The problem is solved in two dimensions and the main crack is treated via the Dual Boundary Element Method (DBEM) and microcracks through the conventional BEM. The Mode I stress intensity factor is numerically calculated and the effect of material damage around the tip of the crack is assessed. The material damage is modeled as a large number of small elliptical cavities randomly distributed in the plate. The solution of the just described large-scale problem is accomplished with the aid of a Boundary Element method (BEM) accelerated via Adaptive Cross Approximation (ACA) and Hierarchical Matrices (HM) techniques, also proposed in the framework of the present work. The combination of DBEM with ACA/BEM offers a robust numerical tool for solving fracture mechanics problems with high memory requirements.

Keywords: fracture mechanics, crack in damaged plate, Dual Boundary Element Method, Adaptive Cross Approximation.

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No. [ICCES1520150604396](#) **Submitted Paper (1)**
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 by T. Gortsas, I. Diakides, S.V. Tsinopoulos at 6/4/2015 6:14:26 AM
 submitted by **phd student Theodore Gortsas**

Basic Information

Title: Determination of Mode I Stress Intensity Factor for a crack
Authors: T. Gortsas, I. Diakides, S.V. Tsinopoulos
Abstract: In the present work, the problem of a main crack surrounded by a large number of microcracks and subjected to a thermoelastic loading is solved numerically via an advanced Boundary Element Method (BEM). The problem is solved in two <2000 chars
Theme: No. [6] Meshless & other novel methods of comp. mod. in engng & sci.
Symposium: No. [41] MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods

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Technical Program: ICCES'15 Reno, NV, USA

July 20 - 24, 2015, Reno, NV, USA

| Theme Session Paper | Mechanics of Fluids, gases, and Fluid/MEMS A01: Computational & Experimental Fluid/Electromagnetic Dynamics and Other | Date: July-21 Time: 8:30AM-10:15AM | Room: A |
|----------------------------|---|---|--------------------------|
| | Title | Author | Time |
| ICCES1520150406112 | Complicated Fluid Flow Simulations by Particle Methods Using Hyperbolic-type Kernel Functions | K. Kakuda, H. Hosokawa, T. Kusakabe, J. Toyotani, S. Miura, R. Inoue, N. Katsurada, S. Higuchi and S. Matsuda | 8:30AM-9:00AM *fellow |
| ICCES1520150508296 | Parallel Large Eddy Simulation for Turbulent Reactive Flow Modeling | Jiajia Waters, David B. Carrington and Darrell W. Pepper | 9:00AM-9:30AM *award |
| ICCES1520150407117 | Numerical Study on Liquid Metal Magnetohydrodynamic Turbulent Flows under Various Electrical Circuit Conditions | Hirofumi Kobayashi, Liancheng Hu, Yoshihiro Okuno | 9:30AM-9:50AM |
| ICCES1520150415150 | Implementation of Variable Preconditioned Krylov Subspace Method on GPU and Estimation of Optimal Parameters | Soichiro Ikuno, Gong Chen | 9:50AM-10:10AM |
| Theme Session Paper | Modeling in Engineering and Sciences A02: Catastrophic Destruction Mechanics and Numerical Modeling | Date: July-21 Time: 10:30AM-12:15PM | Room: A |
| | Title | Author | Time |
| ICCES1520150405111 | Study On Hydraulic Concrete Cracking Criterion In Smearred Crack Numerical Model | REN Qing-wen, GU Jia-feng | 10:30AM-10:55AM *keynote |
| ICCES1520150330072 | The Influence of Initial Stresses on Concrete Sluice Strengthening | Mei Mingrong, Sheng Weigao, Ren Qingwen | 10:55AM-11:15AM |
| ICCES1520150324061 | Isogeometric finite element free vibration and buckling analysis of laminated composite plates with cutouts using a new simple FSDT theory and level set method | Tiantang Yu, Shuohui Yin, Tinh Quoc Bui | 11:15AM-11:35AM |
| ICCES1520150331076 | Application of Monte Carlo Method to Probability Analysis of Dam Overtopping Caused by Landslide | Shengping Gu, Lei He, Jun He, Wanwan Lv | 11:35AM-11:55AM |
| ICCES1520150421176 | Study on the Interaction and Effect of Soft Foundation Embankment and Viaduct Bridge Cross | Yin Zhao | 11:55AM-12:15PM |
| Theme Session Paper | Modeling in Engineering and Sciences A03: Catastrophic Destruction Mechanics and Numerical Modeling | Date: July-21 Time: 1:30PM-3:30PM | Room: A |
| | Title | Author | Time |
| ICCES1520150608400 | Modeling debris-flow runout patterns on a local slope of 2011 Seoul event using DAN3D | Deuk-Hwan Lee, Seung-Rae Lee, N. V. Nikhil and Joon-Young Park | 1:30PM-1:55PM *keynote |
| ICCES1520150521324 | Effect of Earthquake Ground Motion Duration on Structural Damage | Xiangdong Qian | 1:55PM-2:15PM |
| ICCES1520150416159 | Elastic Modulus Inversion Analysis Method of High Arch Dam Based on Weighted Least Squares Support Vector Machines and Changed Genetic Algorithm | Chungao Liu, Chongshi Gu, Xin Cao, Jiachen Liang, Zhongwen Shi | 2:15PM-2:35PM |
| ICCES1520150426198 | Nonlinear finite element analysis of tube-gusset joints with ring plate | Xiaolu Li, Hui Li, Ling Yao and Ling Zhang | 2:35PM-2:55PM |
| ICCES1520150420171 | Research on Simulation System for Preventing and Controlling Thermal Crack of Mass Concrete and its Application | Chao Su, Chao Xu, Yang Su, Lu Wang, Lin Su, Fangfang Sheng | 2:55PM-3:15PM |
| ICCES1520150427214 | Analysis of the Polished Load of Adjustable-Diameter and Changeable-Moment Pumping Unit | TANG Jing-fei, Wu Xiao-dong, Gao Zhao-min | 3:15PM-3:35PM |
| Theme Session Paper | Modeling in Engineering and Sciences A04: Computational methods in celestial mechanics | Date: July-21 Time: 4:00PM-6:30PM | Room: A |
| | Title | Author | Time |
| ICCES1520150704424 | Enhancements to Modified Chebyshev-Picard Iteration Efficiency for Perturbed Orbit Propagation | Brent Macomber, Austin Probe, Robyn Woollands, Julie Read and John Junkins | 4:00PM-4:40PM *theme |

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|----------------------------|---|---|--|----------------|
| ICCES1520150430259 | Integration of the Coupled Orbit-Attitude Dynamics Using Modified Chebyshev-Picard Iteration Methods | Xiaoli Bai and John L. Junkins | 4:40PM-5:00PM | *invited |
| ICCES1520150704425 | Modified Chebyshev Picard Iteration Accuracy and Stability for Multi-Orbit Propagation | Robyn Woollands, Abhay Masher, Brent Macomber, Austin Probe, Donghoon Kim, Julie Read, Ahmad Bani Younes and John Junkins | 5:00PM-5:20PM | *invited |
| ICCES1520150704423 | Benchmark Problems for Numerical Astrodynamics Propagation Algorithms | Austin Probe, Brent Macomber, Robyn Woollands, Abhay Masher, Julie Read, Brandon Jones and John Junkins | 5:20PM-5:45PM | *keynote |
| ICCES1520150423183 | Continued Fraction Cartesian to Geodetic Coordinate Transformation | James D. Turner, Adullah Alnaqeb, Ahmad Bani Younes | 5:45PM-6:10PM | *keynote |
| ICCES1520150704427 | Efficient Orbit Propagation of Orbital Elements Using Modified Chebyshev Picard Iteration Method | J.L. Read, A. Bani Younes and J.L. Junkins | 6:10PM-6:30PM | *invited |
| Theme Session Paper | Modeling in Engineering and Sciences A05: Computational methods in celestial mechanics | Author | Date: July-22 Time: 8:30AM-10:15AM | Room: A |
| ICCES1520150501278 | Energy Conserved Planar Motion: The Flight Direction Angle Always Admits an Analytical Solution | Maruthi R. Akella and Sofokli Cakalli | 8:30AM-8:55AM | *keynote |
| ICCES1520150423185 | Model-Based Analytic Continuation Propagation Variables For Two-Body Applications | James D. Turner, Adullah Alnaqeb, Ahmad Bani Younes | 8:55AM-9:15AM | *invited |
| ICCES1520150501281 | Stable and Minimum Energy Configurations in the Spherical, Equal Mass Full 4-Body Problem | D.J. Scheeres | 9:15AM-9:40AM | *keynote |
| ICCES1520150501275 | Single-point and Filtered Relative Position Estimation for Visual Docking | Dylan Conway, Daniele Mortari | 9:40AM-10:05AM | *keynote |
| Theme Session Paper | Modeling in Engineering and Sciences A06: Computational methods in celestial mechanics | Author | Date: July-22 Time: 10:30AM-12:15PM | Room: A |
| ICCES1520150704426 | Multi-Orbit Hybrid Thrust Transfers Using Modified Chebyshev Picard Iteration | Robyn Woollands, Julie Read, Austin Probe, Brent Macomber and John Junkins | 10:30AM-10:50AM | *invited |
| ICCES1520150430262 | Low Thrust Minimum Time Orbit Transfer Nonlinear Optimization Using Multi-Impulse Discretization via the Modified Picard-Chebyshev Method | Darin Koblick, Shujing Xu, Joshua Fogel, and Praveen Shankar | 10:50AM-11:15AM | *keynote |
| ICCES1520150524333 | The Economic Design Problem of Spacecraft Navigation Systems | Kohei Fujimoto, Terry Alfriend, and Rao Vadali | 11:15AM-11:35AM | *invited |
| ICCES1520150501279 | How Non-Gaussian Is It? | Puneet Singla and Manoranjan Majji | 11:35AM-11:55AM | *invited |
| ICCES1520150525364 | Modeling Impacts on Space Situational Awareness Tracking | Carolin Frueh | 11:55AM-12:15PM | *invited |
| Theme Session Paper | Modeling in Engineering and Sciences A07: Computational methods in celestial mechanics | Author | Date: July-22 Time: 1:30PM-3:30PM | Room: A |
| ICCES1520150501280 | Multidirectional Gaussian Mixture Models for Nonlinear Uncertainty Propagation | Vivek Vittaldev and Ryan P. Russell | 1:30PM-1:55PM | *keynote |
| ICCES1520150430258 | A Conjugate Unscented Transformation Based Approach for Accurate Conjunction Analysis | Nagavenkat Adurthi and Puneet Singla | 1:55PM-2:20PM | *keynote |
| ICCES1520150529387 | A Tree-Based Approach for Efficient and Accurate Conjunction Analysis | Michael Mercurio and Puneet Singla | 2:20PM-2:40PM | *invited |
| ICCES1520150508297 | High-Order State Transition Tensors of Perturbed Orbital Motion using Computational Differentiation | Ahmad Bani Younes and James Turner | 2:40PM-3:00PM | *invited |
| ICCES1520150422180 | Solution of Liouville's Equation for Uncertainty Characterization of the Main Problem in Satellite Theory | Ryan M. Weisman, Manoranjan Majji, and Kyle T. Alfriend | 3:00PM-3:20PM | *invited |

| Theme Session Paper | Mechanics of Fluids, gases, and Fluid/MEMS A08: Computational & Experimental Fluid/Electromagnetic Dynamics and Other | Date: July-22 Time: 4:00PM-6:30PM | Room: A |
|----------------------------|--|--|--------------------------|
| ICCES1520150522328 | Efficient Load-balancing Scheme for Multi-agent Simulation System | Kensuke KURAMOTO, Masakazu FURUICHI, Kazuo KAKUDA | 4:00PM-4:25PM *keynote |
| ICCES1520150509298 | Investigation of Shape functions for Meshless Time-Domain Method in Electromagnetic Wave Propagation Simulation | Taku Itoh and Soichiro Ikuno | 4:25PM-4:50PM *keynote |
| ICCES1520150216019 | Design for Foam Drainage Gas Production Using Visual Basic Programming and Case Analysis | Jiaming Zhang, Xiaodong Wu, Zhangxin Chen, Xueqi Cen, Kai Zhang, Bo Wang, Shiwen Chen | 4:50PM-5:10PM |
| ICCES1520150517316 | Experimental research on the rule of sand carrying by oil-water flow in heavy oil reservoirs | Yanfeng Cao, Hong Gao, Xiaoqiu Wang, Min Wen, Zhiming Wang | 5:10PM-5:30PM |
| ICCES1520150521325 | One Dimensional unsaturated flow modeling in nitrogen uptake of pepper under wastewater irrigation | Xiaohui Lu | 5:30PM-5:50PM |
| ICCES1520150510301 | Numerical investigation of a two-stage serial vibration isolation system using FRF-based substructuring method | Rong Guo, Meng-jia Wang, Sheng-qi Zhou, Shan Qiu | 5:50PM-6:10PM |
| ICCES1520150404109 | The Finite Element Method for a Class of Nonlinear Wave Equations | Linlin Zhao and Shushen Xie | 6:10PM-6:30PM |
| Theme Session Paper | Modeling in Engineering and Sciences A09: Symposium on Advances in Computational Modeling (in honor of Professor | Date: July-23 Time: 8:30AM-10:15AM | Room: A |
| ICCES1520150519320 | Data Driven Prognosis:A multi-physics approach verified via balloon burst experiment | Abhijit Chandra and Oliva Kar | 8:30AM-8:55AM *keynote |
| ICCES1520150320043 | Why do cracks branch? A peridynamic investigation | Florin Bobaru and Guanfeng Zhang | 8:55AM-9:20AM *keynote |
| ICCES1520150323053 | Contact Kinematics of Biomimetic Scales | Ranjay Ghosh, Hamid Ebrahimi, and Ashkan Vaziri | 9:20AM-9:40AM |
| ICCES1520150612412 | New Trends in Topology Optimization | Glaucio H. Paulino | 9:40AM-10:05AM *keynote |
| Theme Session Paper | Modeling in Engineering and Sciences A10: Symposium on Advances in Computational Modeling (in honor of Professor | Date: July-23 Time: 10:30AM-12:15PM | Room: A |
| ICCES1520150515314 | Dynamic Interaction between a Crack and an Auxetic Inclusion | A.-V. Phan and K. Kwon | 10:30AM-10:50AM |
| ICCES1520150430249 | Influence of Spatial Thermal Modulation on Wrinkling of a Thin Film Bonded to an Elastic Substrate – a Theoretical Study | Shrinidhi S. Pandurangi, Salil S. Kulkarni | 10:50AM-11:10AM |
| ICCES1520150501274 | Computational Modelling of a Cricket Wing for Bioacoustic Analysis | Rudra Pratap, and Vamsy Godthi | 11:10AM-11:35AM *keynote |
| ICCES1520150426200 | Corrosion damage modeling with peridynamics | Florin Bobaru and Ziguang Chen | 11:35AM-11:55AM |
| ICCES1520150526373 | Fluid flow topology optimization using polygonal elements: Stability and Computational Implementation in PolyTop | Anderson Pereira, Cameron Talischi, Ivan F.M. Menezes, Marcio S. Carvalho and Glaucio H. Paulino | 11:55AM-12:15PM |
| Theme Session Paper | Modeling in Engineering and Sciences A11: Symposium on Advances in Computational Modeling (in honor of Professor | Date: July-23 Time: 1:30PM-3:30PM | Room: A |
| ICCES1520150621415 | A Formulation for Fluid-Structure Interactions initiated by Underwater Implosion | J. S. Briscoe and S.W. Lee | 1:30PM-2:00PM *award |
| ICCES1520150526374 | Large scale ground structure analysis using a scalable interior point algorithm | Ivan F.M. Menezes, A. Cubas and Glaucio H. Paulino | 2:00PM-2:20PM |
| ICCES1520150526377 | Topology Optimization by Improved Element Exchange Method | Liang-Jenq Leu, Yen-Ling Tseng, Ko-Wei Shih, and Chun-Yu Ke | 2:20PM-2:40PM |
| ICCES1520150604395 | An advanced ACA/BEM for solving large-scale elastic problems | T. Gortsas, S.V. Tsinopoulos, D. Polyzos | 2:40PM-3:00PM |

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| ICCES1520150621416 | Effect of curvature on interlaminar stresses in tapered composite structures | Ananth Virakthi | 3:00PM-3:20PM | |
| Theme Session Paper | Advances in Material Science and Engineering A12: Advances in smart materials and systems for Infrastructures | Author | Date: July-23 Time: 4:00PM-6:00PM | Room: A |
| ICCES1520150427206 | Vibration Characteristics of Rock under Harmonic Impact | Siqi Li , Tie Yan, Wei Li and Xianyi Li | 4:00PM-4:25PM | *keynote |
| ICCES1520150524346 | Design of UAV (Unmanned Aerial Vehicle)-type wall-climbing robot for inspection of wind blades | Sungwook Jung, Jae-Uk Shin, Wancheol Myeong, and Hyun Myung | 4:25PM-4:45PM | |
| ICCES1520150525351 | Feasibility study of a new model updating technique using kriging surrogate model | Hyung-Jo Jung, Jung-Hoon Lee, Seung-Seop Jin and Ho-Yeon Jung | 4:45PM-5:05PM | |
| ICCES1520150529381 | Hierarchical Compact Piezoelectric Tripod Manipulator Based on a Reverse Bridge-Type Amplifier | Jun-Ho Choi, Tae-Won Na and Il-Kwon Oh | 5:05PM-5:25PM | |
| ICCES1520150529386 | 3D Networked Porous Graphene for Hydrogen Storage | Jung-Hwan Oh , Rajesh Kumar and Il-Kwon Oh | 5:25PM-5:45PM | |
| ICCES1520150525352 | Experimental Investigation of a new building integrated wind turbine system utilizing building skin | Jeongsu Park , Hyung-Jo Jung | 5:45PM-6:05PM | |
| Theme Session Paper | Modeling in Engineering and Sciences B01: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Author | Date: July-21 Time: 8:30AM-10:15AM | Room: B |
| ICCES1520150524343 | The Analysis of Thin Shells with the Hexa 27 Solid Element | P.V. Marcal, J. Fong, N. Yamagata | 8:30AM-9:10AM | *theme |
| ICCES1520150224021 | The MLPG method for Cowin-Nunziato's model of porous elastic materials | J. Sladek, V. Sladek, P. L. Bishay, S. Hrcek | 9:10AM-9:40AM | *fellow |
| ICCES1520150524342 | On the Mixed Meshless Local Petro-Galerkin (MLPG) Paradigm for the 4th Order Differential Equations | T. Jarak, J. Sorić and S.N. Atluri | 9:40AM-10:00AM | |
| ICCES1520150525370 | A modified Trefftz method for solving Cauchy inverse problems of three dimensional elasticity | Tao Zhang , Leiting Dong, and Satya. N. Atluri | 10:00AM-10:20AM | |
| Theme Session Paper | Modeling in Engineering and Sciences B02: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Author | Date: July-21 Time: 10:30AM-12:15PM | Room: B |
| ICCES1520150604394 | Analytical and numerical solutions for static and dynamic strain gradient elastic problems: new results and perspectives | Demosthenes Polyzos and Euripides J. Sellountos | 10:30AM-11:00AM | *fellow |
| ICCES1520150517317 | Application of the meshless boundary method to the thermal/flow problems with immersed objects | Chien-Ting Wu, Ching-Kai Chou, Der-Liang Young | 11:00AM-11:25AM | *keynote |
| ICCES1520150518318 | An arbitrary refinement technique by the coupled MLPG/FVM to the applications of thermal/flow problems | Ching-Kai Chou, Chien-Ting Wu, Der-Liang Young | 11:25AM-11:45AM | |
| ICCES1520150307026 | An hr- adaptive coupling method for exterior anisotropic elliptic problems | Quan Zheng, Feng Qin, Xin Zhao | 11:45AM-12:10PM | *keynote |
| Theme Session Paper | Advances in Material Science and Engineering B03: Ill-posed and inverse problems | Author | Date: July-21 Time: 1:30PM-3:30PM | Room: B |
| ICCES1520150425194 | Some fundamental issues and related solutions in anisotropic and layered solids | Ernian Pan | 1:30PM-2:00PM | *award |
| ICCES1520150423186 | Dual boundary element method formulation to simulate 3D sound absorbing barriers | J. António and A. Tadeu | 2:00PM-2:25PM | *keynote |
| ICCES1520150525362 | ACA applied to 3D anisotropic stress analysis of fiber-matrix composites using the multi-domain BEM | R. Q. Rodriguez, P. Sollero, C.L. Tan and E. L. Albuquerque | 2:25PM-2:50PM | *keynote |
| ICCES1520150525361 | On the evaluation of results at internal points in the hybrid boundary element methods | Carlos Andres Aguilar, Ney Augusto Dumont | 2:50PM-3:10PM | |
| ICCES1520150413140 | Fast Boundary Element Method for Shape Optimization of HTR-PM RPV Nozzle | Wen Bo, Zheng-cao Li, Hai-tao Wang | 3:10PM-3:30PM | |

| Theme Session Paper | Modeling in Engineering and Sciences B04: Computational Science for Welded Structures from Production to Reliability | Date: July-21 Time: 4:00PM-6:30PM | Room: B |
|----------------------------|---|--|----------------|
| Title | Author | Time | |
| ICCES1520150325063 | Variational Method for Plate Forming Problem to Compute Inherent Strain Field Subjected to Geometrical Restraint Condition | H. Murakawa, N. Takara, A. Kawahara, Y. Tango, M. Ishiyama 4:00PM-4:30PM | *fellow |
| ICCES1520150430256 | Computational Weld Modeling and PWSCC Crack Growth Modeling Approaches | Frederick W. Brust, E. Punch 4:30PM-4:55PM | *keynote |
| ICCES1520150430257 | Crack propagation analysis under the influence of weld residual stress | Masashi Nose, Hiroshi Okada, Akira Maekawa 4:55PM-5:25PM | *fellow |
| ICCES1520150414148 | Estimation of welding deformation in ship structural blocks | Ninshu Ma and Atsuo Moriyama 5:25PM-5:50PM | *keynote |
| ICCES1520150531388 | 3-dimensional coupling numerical analysis of spot welding | R. Natsume, K. Ikushima, M. Shibahara 5:50PM-6:15PM | *keynote |
| ICCES1520150531389 | Residual stress analysis of multi-pass welded joint | Kazuki Ikushima, Masakazu Shibahara 6:15PM-6:35PM | |
| Theme Session Paper | Advances in Material Science and Engineering B05: Advances in Computational Material Science and Engineering | Date: July-22 Time: 8:30AM-10:15AM | Room: B |
| Title | Author | Time | |
| ICCES1520150411136 | Analytical and FE modeling of FGM beams based on a refined shear deformable beam theory for static and dynamic thermo-elastic analysis of FGM beams | C. Xie and G. Shi 8:30AM-8:55AM | *keynote |
| ICCES1520150422178 | Molecular Dynamics Study on Nano Mechanics of Nanoindented Graphene Nanoribbon | Jeong Won Kang 8:55AM-9:20AM | *keynote |
| ICCES1520150501282 | An h-adaptive Finite Element Model for Simulating Hydraulic Fracturing and Contaminant Transport | Jiajia Waters and Darrell W. Pepper 9:20AM-9:40AM | |
| ICCES1520150527378 | Free Vibration and Dynamic Response Analysis of Laminated Thick-Section Plates and Shells by Hexahedral C0 Element with Over-Integration | Qifeng Fan, Yaping Zhang, Leiting Dong, Shu Li and Satya N. Atluri 9:40AM-10:00AM | |
| ICCES1520150429237 | Flat-bottomed pressure head intruding into rock crushing mechanism | Shibin Li, Ligang Zhang 10:00AM-10:20AM | |
| Theme Session Paper | Modeling in Engineering and Sciences B06: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Date: July-22 Time: 10:30AM-12:15PM | Room: B |
| Title | Author | Time | |
| ICCES1520150512307 | Elastic wave propagation in fluid-filled boreholes driven in non-homogeneous media, simulated by coupling the BEM and MLPG method | A. Tadeu, P. Stanak, J. Antonio, J. Sladek, V. Sladek 10:30AM-11:00AM | *fellow |
| ICCES1520150413142 | Strain and Stress Analysis of Sliding Rough Surfaces | Jeng-Haur Horng, Shin-Yuh Chern, Cheng-Han Tsai 11:00AM-11:20AM | |
| ICCES1520150614413 | Use of Miniature Specimen Test Techniques as Methods for Life Prediction. | Raghu V. Prakash 11:20AM-11:45AM | *keynote |
| ICCES1520150429232 | A Numerical Simulation Evaluation of Hydraulic Fracturing for Layered Shale Formation based on Discrete Element Method(DEM) | Yumei Li, Jun Li, Gonghui Liu, Shibin Sun, Yu Liwei, MingTao Fan 11:45AM-12:05PM | |
| ICCES1520150501272 | Calculation of Side Friction between Foundation and Conductor during Jetting Process | Yunjin Xu, Jin Yang, Wei Meng 12:05PM-12:25PM | |
| Theme Session Paper | Modeling in Engineering and Sciences B07: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Date: July-22 Time: 1:30PM-3:30PM | Room: B |
| Title | Author | Time | |
| ICCES1520150520321 | Numerical Modeling of Material Discontinuity Using Mixed MLPG Collocation Method | B. Jalušić, J. Sorić and T. Jarak 1:30PM-1:55PM | *keynote |
| ICCES1520150628419 | Method of Regularized Sources for Potential and Stokes Flow Problems in Axisymmetry | B. Sarler, R. Zahoor, S. Wen, W. Kai 1:55PM-2:20PM | *keynote |
| ICCES1520150401092 | A Kind of Fractional Eigen value Boundary Value Problems | Junfang Zhao, Shijie Wang, Yu Wang 2:20PM-2:40PM | |
| ICCES1520150429238 | Research on Chaos Features of Crack Evolution in Coal-Rock Fracturing | Wang Tingting,Zhao Dan,Zhao Wanchun,Jiang Dongfeng 2:40PM-3:00PM | |

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| ICCES1520150313033 | Computational Method for the Aeromechanical Behaviors of a Rotorcraft in Vortex Ring State | Weicheng Pei, Shu Li | 3:00PM-3:20PM | |
| Theme Session Paper | Modeling in Engineering and Sciences B08: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Author | Date: July-22 Time: 4:00PM-6:30PM | Room: B |
| ICCES1520150525358 | ON THE CONSISTENT AND ACCURATE EVALUATION OF INTEGRALS WITH HIGH-ORDER SINGULARITIES AND QUASI-SINGULARITIES IN THE BOUNDARY ELEMENT METHODS | Ney Augusto Dumont | 4:00PM-4:30PM | *fellow |
| ICCES1520150428222 | Molecular Dynamics Simulation of Inelastic Deformation in a Multi-layered Material under Tensile Load | Takuya Uehara | 4:30PM-4:55PM | *keynote |
| ICCES1520150421175 | A reaction-diffusion-stress coupling model for stress evolution and distribution in the viscoplastic oxide scale during oxidation | Hailong Wang, Shuling Hu, Shengping Shen | 4:55PM-5:25PM | *fellow |
| ICCES1520150404110 | Positive solutions for boundary value problem of fractional differential equations | Fengjie Geng and Long Fang | 5:25PM-5:45PM | |
| ICCES1520150430253 | Study on cutting particles settling velocity within power law fluid | Sun Xiaofeng, Yan Tie, Wang Li, Li Xianyi | 5:45PM-6:05PM | |
| ICCES1520150427209 | Studies on Wellbore Stability of Shallow Sediments in Deepwater Drilling | Chi Ai, Jun Zhang, Yuwei Li | 6:05PM-6:25PM | |
| Theme Session Paper | Modeling in Engineering and Sciences B09: Advances in High-performance and Intelligent Computational Mechanics | Author | Date: July-23 Time: 8:30AM-10:15AM | Room: B |
| ICCES1520150415154 | Variable-node polyhedral finite elements and their applications | Seyoung Im | 8:30AM-9:00AM | *award |
| ICCES1520150402095 | Elastic-Plastic Analysis of Cracked Structure and Performance Estimation Model with Partitioned Coupling Method | Yasunori Yusa and Shinobu Yoshimura | 9:00AM-9:25AM | *keynote |
| ICCES1520150428223 | Dynamic Mesh Refining and Iterative Substructure Method for Fillet Welding Thermo-Mechanical Analysis | Hui Huang, Hidekazu Murakawa | 9:25AM-9:50AM | *keynote |
| ICCES1520150505287 | Petascale Simulation of Real World's Complex Structure Attacked by Strong Earthquake | Shinobu Yoshimura, Tomonori Yamada, Tomoshi Miyamura, Hiroshi Kawai | 9:50AM-10:20AM | *award |
| Theme Session Paper | Modeling in Engineering and Sciences B10: Advances in High-performance and Intelligent Computational Mechanics | Author | Date: July-23 Time: 10:30AM-12:15PM | Room: B |
| ICCES1520150525367 | A Domain Specific Language in Continuum Mechanics Field for the Development of Finite Elements | Hiroshi Kawai, Ryuji Shioya | 10:30AM-10:55AM | *keynote |
| ICCES1520150521326 | Performance Evaluation of Flapping Motion of Deformable Wing Using Partitioned FSI Analysis | Giwon Hong, Tomonori Yamada and Shinobu Yoshimura | 10:55AM-11:15AM | |
| ICCES1520150524331 | High-accuracy Parallel Finite Element Electromagnetic Field Analysis Using Anatomical Human Models | A. Takei, K. Murotani, H. Kawai, T. Yamada and S. Yoshimura | 11:15AM-11:35AM | |
| ICCES1520150525350 | A MODIFIED BALANCING DOMAIN DECOMPOSITION METHOD ON ADDITIVE SCHWARTZ FRAMEWORK | Tomonori Yamada and Shinobu Yoshimura | 11:35AM-11:55AM | |
| ICCES1520150521323 | Matrix Preconditioning for Origin-Destination Estimation in Traffic Simulation | Kazuki Abe, Hideki Fujii and Shinobu Yoshimura | 11:55AM-12:15PM | |
| Theme Session Paper | Modeling in Engineering and Sciences B11: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Author | Date: July-23 Time: 1:30PM-3:00PM | Room: B |
| ICCES1520150401082 | Efficient methods for homogenization of random heterogeneous materials | Yufeng Nie, Yatao Wu, Junzhi Cui | 1:30PM-1:55PM | *keynote |
| ICCES1520150525372 | Micromechanics of Heterogeneous Materials by Computational Grains | Leiting Dong | 1:55PM-2:20PM | *keynote |
| ICCES1520150326065 | Computationally efficient numerical techniques for a space-fractional FitzHugh-Nagumo monodomain model | F. Liu, I. Turner and K. Burrage | 2:20PM-2:45PM | *keynote |

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| ICCES1520150524344 | Generating Shell Meshes Using Solid Elements | R. Rainsberger, J. Fong, N. Yamagata, P.V. Marcal | 2:45PM-3:05PM | |
| Theme Session Paper | Modeling in Engineering and Sciences B12: Predictive Methods for Heterogeneous Material Design Title | Author | Date: July-23 Time: 3:00PM-6:00PM | Room: B |
| ICCES1520150604398 | Physical and Computational Foundations for Predictive Performance Methodologies | Kenneth Reifsnider | 3:00PM-3:40PM | *theme |
| ICCES1520150325062 | Predicting Ionic Conductivity in Three-Dimensional Porous Electrochemical Electrode Microstructures | Matthew B. DeGostin and Wilson K. S. Chiu | 4:00PM-4:25PM | *keynote |
| ICCES1520150526375 | Multiphysics charge transport behavior study of heterogeneous functional material systems using finite element analysis of real microstructural domain | Fazle Rabbi, Kenneth Reifsnider | 4:25PM-4:45PM | |
| ICCES1520150529385 | COMPUTATIONAL DIELECTRIC PROPERTY ANALYSIS OF DAMAGED COMPOSITE MATERIALS | Rassel Raihan, Jeffrey Baker, Kenneth Reifsnider | 4:45PM-5:05PM | |
| ICCES1520150604397 | Novel catalysts for solid oxide metal-air redox battery | Cuijuan Zhang, Kevin Huang | 5:05PM-5:25PM | |
| ICCES1520150605399 | Multi-Physical Description and Framework for Prediction of Material State Evolution in Fiber Reinforced Composite Material | Dr. Prasun Majumdar, Jallisa Clifford, Mohammad FaisalHaider, Kevin Epley, and Hunter Goman | 5:25PM-5:45PM | |
| ICCES1520150329069 | A method for selecting the correct reamer and bit combination to drill specific formations in reaming while drilling | Xuyue Chen, Deli Gao, Boyun Guo | 5:45PM-6:05PM | |
| Theme Session Paper | Modeling in Engineering and Sciences B13: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods Title | Author | Date: July-24 Time: 8:30AM-10:15AM | Room: B |
| ICCES1520150524348 | 3D-printing and Macro Modeling of Micro Lattices | P.V. Marcal, J. Fong, R. Rainsberger, N. Yamagata | 8:30AM-8:50AM | |
| ICCES1520150501273 | Buckley-Leverett Analysis for Transient Two-phase Flow in Fractal Porous Medium | Yonggang Duan , Ting Lu, Mingqiang Wei, Boming Yu , Zhelun Zhang | 8:50AM-9:10AM | |
| ICCES1520150401086 | Singular boundary method for water wave problems | Zhuo-Jia Fu, Wen Chen, Zatianina Razafizana | 9:10AM-9:30AM | |
| ICCES1520150319042 | Dynamic Response of Curved Aluminum Panels Subjected to Thermo-mechanical loads | Prathmesh Naik Parrikar, Craig Tilton and Arun Shukla | 9:30AM-9:50AM | |
| ICCES1520150604396 | Determination of Mode I Stress Intensity Factor for a crack propagating in a micro-cracked plate | T. Gortsas, I. Diakides, S.V. Tsinopoulos | 9:50AM-10:10AM | |
| Theme Session Paper | Modeling in Engineering and Sciences B14: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods Title | Author | Date: July-24 Time: 10:30AM-12:15PM | Room: B |
| ICCES1520150420166 | Mixed Mode Cohesive Zone Modeling and Analysis of Adhesively Bonded Carbon Fiber Composite T-Joint under Pull-Out Load | A. Sane , P. M. Padole, C. M. Manjunatha and R.V. Uddanwadiker | 10:30AM-10:50AM | |
| ICCES1520150126013 | A Group Preserving Scheme and New Transformation Method for Solving Cauchy Inverse Problem of Nonhomogeneous Heat Equation in Ship Power System | Chih-Wen Chang | 10:50AM-11:10AM | |
| ICCES1520150520322 | Vibration Analysis of Arbitrarily Shaped Non-homogeneous Membranes by Using the Hybrid Dynamic Infinite Element Method | D.S. Liu, I.H. Lin | 11:10AM-11:30AM | |
| ICCES1520150401081 | The GL(N, R) shooting method for solving inverse heat source of nonhomogeneous heat equation in ship power system | Chih-Wen Chang | 11:30AM-11:50AM | |
| ICCES1520150401084 | The Lie-group adaptive scheme for solving heat capacity of nonlinear heat equation in ship engine system | Chih-Wen Chang | 11:50AM-12:10PM | |
| Theme Session Paper | Multidisciplinary Analysis & Synthesis of Complex Systems C01: Computational Biology, Biomechanics and Bioengineering Title | Author | Date: July-21 Time: 8:30AM-10:15AM | Room: C |

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| ICCES1520150426201 | Computational modeling combined with engineering to develop right ventricle pulmonary valve replacement surgical | Chun Yang, Dalin Tang, Nikolay Vasilyev, Rahul Rathod, Tal Geva, Pedro J. del Nido | 8:30AM-8:55AM | *keynote |
| ICCES1520150324060 | Contralateral Artery Enlargement Predicts Carotid Plaque Progression Based On Machine Learning Algorithm Models in ApoE ^{-/-} Mice | Yuyu Yao, Yun Jiao, Bing Li | 8:55AM-9:15AM | |
| ICCES1520150424188 | Factors Influencing the Pressure Drop in a Patient Specific Right Coronary Artery with Multiple Stenoses | Biyue Liu and Dalin Tang | 9:15AM-9:40AM | *keynote |
| ICCES1520150429236 | Effects of Extracellular ATP Signal Transport and Shear Stress Modulation on Intracellular Calcium Dynamics in Vascular Endothelial Cells in a Shallow Microfluidic channel | Kai-Rong Qin, Zheng-Ming Gao, Long-Fei Li | 9:40AM-10:00AM | |
| ICCES1520150429240 | Comparing Acute Effects of Moderate and High Intensity of Cycling Intervention on Carotid Arterial Hemodynamics | Hai-Bin Liu, Wen-Xue Yuan, Yan-Xia Wang, Yan Chen, Kai-Rong Qin | 10:00AM-10:20AM | |
| Theme Session Paper | Multidisciplinary Analysis & Synthesis of Complex Systems C02: Multi-Physics Modeling and Simulation of Fluid Systems Title | Author | Date: July-21 Time: 10:30AM-12:15PM Time | Room: C |
| ICCES1520150403102 | Innovative uses of nanotechnology in civil infrastructures | H.K. Lee | 10:30AM-11:00AM | *fellow |
| ICCES1520150525368 | Interplay of Fluid Dynamics and Collective Behavior of Microorganisms | Alireza Karimi, Arezoo Ardekani | 11:00AM-11:25AM | *keynote |
| ICCES1520150321048 | Sensitivity analysis of wellbore flow while horizontal drilling in marine natural gas hydrate reservoir | Na Wei, Ying-Feng Meng, Gao Li, Ping Guo, An-Qi Liu, Bo-yun Guo, Wan-Tong Sun, Tian Xu | 11:25AM-11:45AM | |
| ICCES1520150327067 | Aging Effects on Tracheobronchial (TB) Whole Lung and Idealized Airways | Jongwon Kim, Rebecca Heise, Angela Reynolds and Ramana Pidaparti | 11:45AM-12:10PM | *keynote |
| Theme Session Paper | Multidisciplinary Analysis & Synthesis of Complex Systems C03: Computer-Aided Design and Analysis of Sub-sea Engng Systems in Oil and | Author | Date: July-21 Time: 1:30PM-3:30PM Time | Room: C |
| ICCES1520150401087 | FDM with SADI Captured Complexity of an Oil Reservoir Near a Salt Dome in the Gulf of Mexico | Boyun Guo | 1:30PM-2:10PM | *theme |
| ICCES1520150514312 | The Research of Deep Penetration and Low-Damage Acidizing Fluid for Suizhong 36-1 Oilfield | Wang Jigang, Liu Qingwang, Fan Zhenzhong, Liu zhikai | 2:10PM-2:35PM | *keynote |
| ICCES1520150427210 | The Near-bit Torsional Impactor and Its Application Based on Stick-slip Vibration | Wei Li, Tie Yan and Siqi Li | 2:35PM-2:55PM | |
| ICCES1520150428220 | Simulation on incipient particle motion in complex structure wells | Sun Xiaofeng, Yan Tie, Wang Li | 2:55PM-3:15PM | |
| ICCES1520150409128 | Origin Mechanism and model of Reservoir Tightness of Jurassic Tight Sandstone Gas Reservoir in Wenjisang Area, Tuha Basin, China | Qinglin Bai, Shaochun Yang, Guoning Chen, Xiaodong Zhao | 3:15PM-3:35PM | |
| Theme Session Paper | Modeling in Engineering and Sciences C04: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods Title | Author | Date: July-21 Time: 4:00PM-6:30PM Time | Room: C |
| ICCES1520150413141 | A Solid-shell Element based on Numerical Manifold Method with Independent Covers(ICNMM) | Guang-chao Zhang, Yong-chang Cai, He-hua Zhu | 4:00PM-4:25PM | *keynote |
| ICCES1520150525357 | A numerical model for the simulation of depth-averaged flow and transport phenomena in sedimentary basins | Ney A. Dumont, Elvis Y. Mamani, Carlos A. Aguilar, Helvio F. C. Peixoto, Alexandre A. O. Lopes, Stefane Lopes | 4:25PM-4:45PM | |
| ICCES1520150426197 | A Meshless Local Petrov-Galerkin Method for Chloride Diffusion in Concrete | Ling Yao, Xiaolu Li and Ling Zhang | 4:45PM-5:05PM | |
| ICCES1520150622417 | Aerodynamic Shape Optimization | Sanjay Mittal, Varun Bhatt, S. Jawahar Sivabharathy | 5:05PM-5:35PM | *award |
| ICCES1520150502285 | Finite element characterization of the influence of rock plasticity on hydraulic fracturing | W. Liu, H.T. Li, B.H. Yu and J.G. Deng | 5:35PM-5:55PM | |

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| ICCES1520150316036 | Analysis of hypersonic panel flutter with third-order piston theory | Dan Xie, Min Xu, Honghua Dai and Tao Chen | 5:55PM-6:20PM | *keynote |
| Theme Session Paper | Advances in Material Science and Engineering C05: Amorphous Material Systems for Extreme Loading Conditions: Theory, Experimental and Numerical Studies | Date: July-22 | Room: C | |
| | Title | Author | Time | |
| ICCES1520150609401 | Deformation and Failure Analysis of Nanoscale Hydrated Calcium Silicate Hydrate (CSH) ik Cement Paste under Compression: CSH Jennite | A. Mohamed, W. Hodo, J. Rivas, R. Mohan, A. Rajendran, and R. Valisetty | 8:30AM-8:50AM | *invited |
| ICCES1520150701420 | Amorphous Materials for Transparent Armor | Timothy Talladay | 8:50AM-9:10AM | |
| ICCES1520150424191 | Multiscale Simulation of Nanostructural Transition under Extreme Loading | Zhen Chen, Shan Jiang, Yu-Chen Su, Yong Gan, and Thomas D. Sewell | 9:10AM-9:35AM | *keynote |
| ICCES1520150513310 | Atomic Scale Modeling of Shock-Response of Fused Silica | Jin Wang and Avinash M. Dongare | 9:35AM-9:55AM | *invited |
| ICCES1520150602392 | Toward Better Models and Materials for Glass Armor | Donald A. Shockey and Takao Kobayashi | 9:55AM-10:20AM | *keynote |
| ICCES1520150603393 | Computational Modeling of Heterogeneous Materials under Shock Loading Conditions: Challenges and Issues | Arunachalam Rajendran and Mathew Nelms | 10:30AM-11:00AM | *fellow |
| Theme Session Paper | Mechanics of Fluids, gases, and Fluid/MEMS C06: Fluid-Structure Interaction | Date: July-22 | Room: C | |
| | Title | Author | Time | |
| ICCES1520150407116 | New Advances in MLPG_R Method for Modeling the Breaking Waves and Their Interaction with Structures | Q.W. MA | 11:00AM-11:30AM | *fellow |
| ICCES1520150524338 | Review of Bilge Keel Loads Calculations for FPSOs | Xiaochuan Yu, Xuan Kong, Lixin Xu | 11:30AM-11:55AM | *keynote |
| ICCES1520150410133 | A new interface identification technique in two-phase MLPG_R method | Yan Zhou, Qingwei Ma, Shiqiang Yan | 11:55AM-12:15PM | |
| Theme Session Paper | Modeling in Engineering and Sciences C07: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Date: July-22 | Room: C | |
| | Title | Author | Time | |
| ICCES1520150311030 | Two Alternating Direction Implicit Difference Schemes for Two-dimensional Distributed-Order Fractional Diffusion Equations | Zhi-zhong Sun and Guang-hua Gao | 1:30PM-1:55PM | *keynote |
| ICCES1520150321046 | Finite Difference Methods for a Class of Time Distributed-order Fractional Wave Equations | Guang-hua Gao, Zhi-zhong Sun | 1:55PM-2:15PM | |
| ICCES1520150330075 | Existence of unbounded solutions for a n-th order BVPs with a p-Laplacian | Hairong Lian, Yue Gao, Junfang Zhao, Yongli Xing | 2:15PM-2:35PM | |
| ICCES1520150316038 | A time domain collocation method for obtaining the periodic solutions to the van der Pol oscillator | Xuechuan Wang, Honghua Dai, Xiaokui Yue | 2:35PM-3:00PM | *keynote |
| ICCES1520150319041 | Numerical algorithms with high spatial accuracy for the fourth-order fractional sub-diffusion equations with the first Dirichlet boundary conditions | Cui-cui Ji, Zhi-zhong Sun | 3:00PM-3:20PM | |
| ICCES1520150525359 | Use of improved Westergaard stress functions for the adequate simulation of the stress field around crack tips including plastic zones | Elvis Yuri Mamani-V, Ney Augusto Dumont | 3:20PM-3:40PM | |
| Theme Session Paper | Mechanics of Fluids, gases, and Fluid/MEMS C08: Fluid-Structure Interaction | Date: July-22 | Room: C | |
| | Title | Author | Time | |
| ICCES1520150429231 | Slamming Impact Water Entry Problem for Deformable Composite Materials using Explicit Finite Element Method | Omar Hashim Hassoon | 4:00PM-4:20PM | |
| ICCES1520150524334 | TLP Motion Suppression with New Type Tuned Liquid Column Dampers | Yang Yu and Lixin Xu | 4:20PM-4:40PM | |
| ICCES1520150524335 | Understanding and Numerical Investigation of Wave Absorption Methods | Chengxi Li and Yuming Liu | 4:40PM-5:00PM | |
| ICCES1520150413137 | An improved technique to generate rogue waves in random seas | Jinghua Wang, S Yan, Q.W Ma | 5:00PM-5:20PM | |

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| ICCES1520150510300 | The combination of Tikhonov regularization and SVD to improve force reconstruction accuracy and its application in simple and complex structures | Rong Guo, Sheng-qi Zhou, Meng-jia Wang, Huai-qing Fang | 5:20PM-5:45PM | *keynote |
| ICCES1520150525356 | A Unified Model of Oil-Water Two-Phase Flow in the Complex Pipeline | Quanshu ZENG, Zhiming WANG, Xiaoqiu WANG | 5:45PM-6:05PM | |
| ICCES1520150429226 | Simulation Research on Well Control Method without Shutting Well In of Subsea Mud-lift Drilling | Jiwei Li, Jun Li, Gonghui Liu, Yan Xi, Miao He, Hongqi Zhang, Yongxian Duan, Jun Chen, Youwei Li, Yongzhe Shi | 6:05PM-6:25PM | |
| Theme Session Paper | Modeling in Engineering and Sciences C09: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Author | Date: July-23 Time: 8:30AM-10:15AM | Room: C |
| ICCES1520150422179 | 3D Printing Process Simulation with Meshless Method | Ming-Hsiao Lee, Chau-Yi Chou, Shou-I Chen, Keng-Liang Ou, Wen-Hwa Chen | 8:30AM-8:55AM | *keynote |
| ICCES1520150309027 | 3D SGBEM-FEM Alternating Method for Analyzing Mixed-mode Surface Cracks & Non-planar Fatigue-crack-propagation of complex 3D Structures | Longgang Tian, Yongchang Cai, Hehua Zhu, and Satya N. Atluri | 8:55AM-9:20AM | *keynote |
| ICCES1520141213008 | Collocation methods to solve certain Hilbert integral equation with middle rectangle rule | Jin Li and De-hao Yu | 9:20AM-9:40AM | |
| ICCES1520150123012 | Locally supported kernels method of approximate particular solutions for solving elliptic problems with variable coefficients | Marjan Uddin, Kamran, Amjad Ali | 9:40AM-10:00AM | |
| ICCES1520150425192 | Semi-analytical solutions of Fractional Diffusion equations via collocation Trefftz method | Zhuojia FU, Hongguang SUN | 10:00AM-10:20AM | |
| Theme Session Paper | Modeling in Engineering and Sciences C10: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Author | Date: July-23 Time: 10:30AM-12:15PM | Room: C |
| ICCES1520150414147 | RS-HDMR Based Response Surfaces for Probabilistic Vehicle-Bridge Interaction Studies | S. Arun, Devdas Menon, and A. Meher Prasad | 10:30AM-10:55AM | *keynote |
| ICCES1520150409127 | The Combination of Carboniferous Volcanic Reservoir Spaces and Hydrocarbon Storage Modes in Chepaizi Area, Junggar Basin, China | Shaochun Yang, Yaru Wen, Chunmin Xue, Kui Xiang, Yong Wang | 10:55AM-11:20AM | *keynote |
| ICCES1520150329070 | A review on modeling of transport characteristics in fractured networks | Tongjun Miao and Boming Yu | 11:20AM-11:45AM | *keynote |
| ICCES1520150105009 | A Fictitious Time Integration Method for Solving Backward Fisher's Equation in Flame Location | Chih-Wen Chang | 11:45AM-12:10PM | *keynote |
| Theme Session Paper | Modeling in Engineering and Sciences C11: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Author | Date: July-23 Time: 1:30PM-3:30PM | Room: C |
| ICCES1520150323056 | Modeling and simulation of three-component flows on solid surface | Yi Shi, Xiao-Ping Wang | 1:30PM-1:50PM | |
| ICCES1520150501284 | Mixed unsplit-field perfectly matched layers for plane-electromagnetic-wave simulation in the time domain | Sang-Ri Yi, Boyoung Kim, and Jun Won Kang | 1:50PM-2:10PM | |
| ICCES1520150601390 | Towards Multidisciplinary Analysis and Design Optimization for Wings and SpaRibs | Rakesh K. Kapania | 2:10PM-2:35PM | *keynote |
| ICCES1520150121011 | Numerical Solution for Tubular Expansion of Curved Pipe | Abdullah M. Al Shabibi | 2:35PM-2:55PM | |
| ICCES1520150502286 | Geostress calculation mode of bedding soft rock | Zhang Ligang, Tao xin, Li you | 2:55PM-3:15PM | |
| ICCES1520150429234 | Finite Element Analysis of Casing Deformation during Hydraulic Fracturing of the Horizontal Wells in Shale Reservoirs | Mingtao Fan, Gonghui Liu, Jun Li, Miao He, Yan Xi, Yumei Li | 3:15PM-3:35PM | |
| Theme Session Paper | Modeling in Engineering and Sciences C12: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Author | Date: July-23 Time: 4:00PM-6:00PM | Room: C |
| ICCES1520150428218 | Analysis of Fractional Flow for Transient Two-phase Flow in Fractal Porous Medium | Ting Lu, Yonggang Duan, Quantang Fang, Xiaolu Dai | 4:00PM-4:20PM | |

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| ICCES1520150515313 | Computational homogenization-based models of fresh concrete flow | Filip Kolarik, Jan Zeman, Borek Patzak | 4:20PM-4:40PM | |
| ICCES1520150212018 | Application of finite fracture mechanics approach to selected crack problems in layered structures | Michal Kotoul, Oldrich Sevecek, Tomas Profant | 4:40PM-5:00PM | |
| ICCES1520150429241 | A Numerical Model for Evaluating Well Kick with Lost Circulation during Managed Pressure Drilling | Miao He, Jun Li, Gonghui Liu, Mingtao Fan, Yan Xi, Yongxian Duan, Jun Chen, Silong He, Feng Shan | 5:00PM-5:20PM | |
| ICCES1520150429230 | Analysis of Cement Annulus Stress in Pressure-Temperature Coupling Effect During Shale Staged Fracturing | Yan Xi, Gonghui Liu, Jun Li, Mingtao Fan, Jiwei Li, Miao He | 5:20PM-5:40PM | |
| ICCES1520150407120 | A review on non-Darcy seepage analytical solution | Jinsui Wu | 5:40PM-6:00PM | |
| Theme Session Paper | Modeling in Engineering and Sciences C13: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Author | Date: July-24 Time: 8:30AM-10:15AM | Room: C |
| ICCES1520150428221 | Numerical investigation on the singular boundary method | Junpu Li, Wen Chen, Zhuojia Fu | 8:30AM-8:50AM | |
| ICCES1520150322050 | A frequency domain formulation of the singular boundary method for modelling transient wave propagation in poroelastic media | Linlin Sun, Wen Chen | 8:50AM-9:10AM | |
| ICCES1520150401091 | Multiscale Modeling for Process Safety Applications | Arnab Chakrabarty, Tahir Cagin and Sam Mannan | 9:10AM-9:30AM | |
| ICCES1520150401090 | The implicit Lie-group iterative algorithm for solving inverse vibration problem in ship structure | Chih-Wen Chang | 9:30AM-9:50AM | |
| ICCES1520150426203 | Finite element analysis on the dynamic behavior of a shallow rectangular tunnel structure in liquefiable ground | X.H. Bao, Z.F. Xia, G.L. Ye and Y.B. Fu | 9:50AM-10:10AM | |
| Theme Session Paper | Modeling in Engineering and Sciences C14: MLPG, MFS, LBIE, SGBEM, BIE, and other novel computational methods | Author | Date: July-24 Time: 10:30AM-12:15PM | Room: C |
| ICCES1520150428224 | Nonlinear dynamics of a delay-coupled neural network | Xiaochen Mao | 10:30AM-10:50AM | |
| ICCES1520150430246 | A new scheme for the solution of reaction diffusion and wave propagation problems | Ji Lin, Wen Chen, C.S. Chen | 10:50AM-11:10AM | |
| ICCES1520150601391 | Influence of nano concentration on the strength of GO-cement composites | Wonseok Chung, Gang Seok Seo, Youngmin Song, and Donghoon Kang | 11:10AM-11:30AM | |
| ICCES1520150424190 | Ball's motion, sliding friction, and internal load distribution in a high-speed ball bearing subjected to a combined radial, thrust, and moment load | Mário César Ricci | 11:30AM-11:50AM | |
| ICCES1520150326064 | Evaluation of deformation recovery properties of polymer modified asphalt binders | Lan Wang, Chun-qing Chang, Yong-ming Xing | 11:50AM-12:10PM | |
| Theme Session Paper | Experimental Mechanics D01: Symposium on Experimental Mechanics and Optical Metrology (in honor of | Author | Date: July-21 Time: 8:30AM-10:15AM | Room: D |
| ICCES1520150701421 | Lifetime Achievement Medal Lecture | J. Dally | 8:30AM-9:00AM | *award |
| ICCES1520150226022 | Nano-fabricated pixelated micropolarizer array for visible imaging polarimetry | Qingchuan Zhang, Zhigang Zhang, Fengliang Dong, Weiguo Chu, Xiaoping Wu | 9:00AM-9:25AM | *keynote |
| ICCES1520150515315 | High-resolution, superfast 3D optical sensing and applications | Song Zhang | 9:25AM-9:45AM | |
| ICCES1520150323054 | Synchronous full-field measurement of temperature and deformation of C/SiC composite subjected to flame heating at high temperature | Xue Feng | 9:45AM-10:05AM | |
| Theme Session Paper | Experimental Mechanics D02: Symposium on Experimental Mechanics and Optical Metrology (in honor of | Author | Date: July-21 Time: 10:30AM-12:15PM | Room: D |

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| ICCES1520150426195 | One-Pitch Phase Analysis Method for Grating and Its Application to Shape Analysis of Vibrating Object | Yoshiharu MORIMOTO, Yoshiyuki KUSUNOKI, Masaki UEKI, Akihiro MASAYA and Akifumi TAKAGI | 10:30AM-11:00AM | *fellow |
| ICCES1520150615414 | 3D Deformation Field Throughout the Interior of Materials | Helena Jin, Wei-Yang Lu | 11:00AM-11:20AM | |
| ICCES1520150524330 | Development of Photoelastic Experimental Hybrid Method and Application | Jai-Sug Hawong | 11:20AM-11:40AM | |
| ICCES1520150501277 | The Constitutive Response of Low Impedance Materials Subjected to High Strain Rate Loading using Inverse method | Behrad Koohbor, Addis Kidane | 11:40AM-12:00PM | |
| ICCES1520150323051 | Field Scaled Analysis of Geo-stress Based on Thermo-Hydro-Mechanical | Ji Youjun, Wang Jie, Huang Liuke | 12:00PM-12:20PM | |
| Theme Session Paper | Experimental Mechanics D03: Symposium on Experimental Mechanics and Optical Metrology (in honor of | Author | Date: July-21 Time: 1:30PM-3:30PM | Room: D |
| ICCES1520150429239 | Visualization of compression deformation distribution of thin-walled spheres based on 3D-DIC | Meiling Dai, Xiaoyuan He, Fujun Yang | 1:30PM-1:55PM | *keynote |
| ICCES1520150427215 | Full-field deformation measurement technique without the influence of microscope scanning distortion by generating secondary moiré fringes | Qinghua WANG, Shien RI, Satoshi KISHIMOTO | 1:55PM-2:15PM | |
| ICCES1520150430248 | Super-resolution digital image correlation using camera array and image stitching | Xinxing Shao, Chengfei Wang, Yingjun Xu, Xiaoyuan He | 2:15PM-2:35PM | |
| ICCES1520150407121 | Fringe Projection for Measurement Vibration Mode of Thin Plates | Fujun Yang, Yijun Jiang, Xiaoyuan He | 2:35PM-2:55PM | |
| ICCES1520150501266 | Analysis of residual stress on CO2 welded carbon structural steel by loading conditions using 3D ESPI | N.Y. Yun, T.H. Choi, W. J. Kim, H.C. Jung, Yoshida, J.A. Todd, and K.S. Kim | 2:55PM-3:15PM | |
| Theme Session Paper | Advances in Material Science and Engineering D04: Advances in Bio-medical Engineering and Technology | Author | Date: July-21 Time: 4:00PM-6:30PM | Room: D |
| ICCES1520150210016 | Second-order efficient remapping algorithm for two-dimensional cell-centered multi-material arbitrary Lagrangian-Eulerian method | Chuanlei Zhai, Heng Yong | 4:00PM-4:20PM | |
| ICCES1520150420172 | Numerical evaluation of trabecular bone alterations: a Cell Method application | Cosmi Francesca | 4:20PM-4:45PM | *keynote |
| ICCES1520150407122 | Estimation of Gripping forces of various objects by human palm using Surface electromyogram | Tushar Kulkarni, Rashmi Uddanwadiker, Nirbhay Karandikar | 4:45PM-5:05PM | |
| ICCES1520150430252 | CFD Analysis of Pulsatile Flow and Non-Newtonian Behavior of Blood in Arteries | P. Jhunjhunwala, P.M. Padole, S.B. Thombre | 5:05PM-5:25PM | |
| ICCES1520150409129 | Cancer detection by saliva test using Surface Enhanced Raman Spectroscopy | Wen-Xin Zheng, Lin Li, Anyu Chen | 5:25PM-5:45PM | |
| ICCES1520150429242 | Kinematic Modelling and Synthesis of a Human Finger as Multiple Four Bar Mechanism | Tushar Kulkarni, Rashmi Uddanwadiker, Nirbhay Karandikar | 5:45PM-6:05PM | |
| ICCES1520150423187 | 3D Thin-Layer Structure Only Models for Coronary Atherosclerotic Plaques | Xueying Huang, Chun Yang, Jie Zheng, Richard Bach, David Muccigrosso, Pamela K. Woodard, Dalin Tang | 6:05PM-6:25PM | |
| Theme Session Paper | Experimental Mechanics D05: Symposium on Experimental Mechanics and Optical Metrology (in honor of | Author | Date: July-22 Time: 8:30AM-10:15AM | Room: D |
| ICCES1520150714428 | Implosion of Underwater Structures | Arun Shukla | 8:30AM-9:00AM | *award |
| ICCES1520150427217 | Advanced moire methodology for deformation measurement and structural characterization using repeated pattern from nano to mega scale | Shien RI, Qinghua WANG | 9:00AM-9:25AM | *keynote |
| ICCES1520150510302 | Local Strain Analysis of Nitinol During Cyclic Loading | Kenneth Perry | 9:25AM-9:45AM | |

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| ICCES1520150430261 | Small Pitch Phase-shifted Fringe Projection Method with Multi-core Fiber Using the Talbot effect | Takumi HAYASHI, Motoharu FUJIGAKI, Yorinobu MURATA | 9:45AM-10:05AM | |
| ICCES1520150429243 | Compressive failure of laser welded alloy panels inspected by optical technique | Lei Zhenkun, Bai Ruixiang, Tao Wang | 10:05AM-10:10AM | *poster |
| Theme Session Paper | Experimental Mechanics D06: Shape, Deformation and Strain Analysis Title | Author | Date: July-22 Time: 10:30AM-12:15PM | Room: D |
| ICCES1520150428225 | Prototype of High-speed Camera Switching System for 3D Shape and Strain Measurement | Motoharu FUJIGAKI, Takaaki YOSHIKAWA, Yorinobu MURATA | 10:30AM-10:55AM | *keynote |
| ICCES1520150406113 | The inflation of stressed cylindrical shell: An experimental study | Shibin Wang, Qi Liu, Zhiming Guo, Linan Li, Yibin Fu | 10:55AM-11:15AM | |
| ICCES1520150501267 | Comparison of mechanical properties before and after of heat treatment on structural steel for ships using electronic speckle pattern interferometry | H.J. Lee , N.Y.Yun , J.G.Song , H.C. Jung , S. Yoshida , and K.S. Kim | 11:15AM-11:35AM | |
| ICCES1520150401083 | Study of the microstructure and mechanical properties of a nanostructured surface layer on 316L stainless steel | F.C. Lang,Y.R. Zhao,Y.M. Xing, A.F. Jiang | 11:35AM-11:55AM | |
| ICCES1520150429233 | The Research on Production Decline Model of Tight Oil Reservoir | Zongxiao Ren, Xiaodong Wu, Guoqing Han, Zhun Li | 11:55AM-12:15PM | |
| Theme Session Paper | Advances in Material Science and Engineering D07: Metamaterial Science and Technology Title | Author | Date: July-22 Time: 1:30PM-3:30PM | Room: D |
| ICCES1520150512308 | Plasmonic Magnetization During Circularly Polarized Excitation | Athavan Nadarajah, Matthew Sheldon | 1:30PM-1:50PM | *invited |
| ICCES1520150519319 | Some Consequences of the Properties of Metamaterials for Wireless Power Transfer | Chris Stevens | 1:50PM-2:15PM | *keynote |
| ICCES1520150524340 | Concentration of acoustic waves by the metamaterial-convex-lens with the orifice characteristics | Choon Mahn Park and Sang Hun Lee | 2:15PM-2:40PM | *keynote |
| ICCES1520150524347 | Superconducting Metamaterials | Alexey V. Ustinov, Alexandre Karpov | 2:40PM-3:05PM | *keynote |
| ICCES1520150525349 | Fabrication of Metamaterials and its Application toward Energy Devices | Wakana Kubo | 3:05PM-3:30PM | *keynote |
| Theme Session Paper | Advances in Material Science and Engineering D08: Metamaterial Science and Technology Title | Author | Date: July-22 Time: 4:00PM-6:30PM | Room: D |
| ICCES1520150525354 | Graphene metadevices at THz frequencies | Bumki Mn | 4:00PM-4:25PM | *keynote |
| ICCES1520150525355 | Metamaterials and Antenna Miniaturization | Bratin Ghosh | 4:25PM-4:50PM | *keynote |
| ICCES1520150525363 | Metamaterial fiber arrays and tunable radiation pressure | Jeremy N. Munday | 4:50PM-5:15PM | *keynote |
| ICCES1520150525371 | Emergence of optical self-organization and robust light localization in nanophotonics | Kosmas L. Tsakmakidis, Pankaj K. Jha, Yuan Wang, and Xiang Zhang | 5:15PM-5:40PM | *keynote |
| ICCES1520150529379 | Towards self-assembled metamaterials for the visible light | Virginie PONSINET, Xuan WANG, Kevin EHRHARDT, Philippe RICHETTI, Ashod ARADIAN, Philippe BAROIS, Jean-Baptiste SALMON, Sergio GOMEZ-GRANA, Mona TREGUER-DELAPIERRE | 5:40PM-6:05PM | *keynote |
| ICCES1520150427216 | Shear response of a $\Sigma 9$ grain boundary at various energy states | Wenshan Yu , Shengping Shen and M.J. Demkowicz | 6:05PM-6:25PM | |
| Theme Session Paper | Advances in Material Science and Engineering D09: Nanomaterials and Low-dimensional Structures Title | Author | Date: July-23 Time: 8:30AM-10:15AM | Room: D |
| ICCES1520150526376 | Towards a unified model for nanomaterial systems based upon the integrated Green's function | V.K. Tewary and Alex Smolyanitsky | 8:30AM-8:55AM | *keynote |
| ICCES1520150403107 | Order And Disorder In Organic And Perovskite Photovoltaics | Davor Balzar | 8:55AM-9:20AM | *keynote |

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| ICCES1520150511306 | Predicting B-Basis Stiffness and Strengths of Discontinuous Fiber Composites Produced using Pre-Preg Chips | Karen Harban, Michael Arce, and Mark Tuttle | 9:20AM-9:45AM | *keynote |
| ICCES1520150408126 | Phase coarsening in two- and three-dimensional systems | K. G. Wang, H. Yan, and M.E. Glicksman | 9:45AM-10:10AM | *keynote |
| Theme Session Paper | Advances in Material Science and Engineering D10: Nanomaterials and Low-dimensional Structures Title | Author | Date: July-23 Time: 10:30AM-12:15PM | Room: D |
| ICCES1520150514311 | Stability And Electronic Properties In Prototype 2-D Layered Structures | Cristian V. Ciobanu | 10:30AM-10:55AM | *keynote |
| ICCES1520150420170 | Materials Screening through GPU Accelerated Topological Mapping | Branden B. Kappes and Cristian V. Ciobanu | 10:55AM-11:15AM | |
| ICCES1520150525366 | Parallels between solidification and solid-state dewetting: capillary-driven shape instabilities in solid thin films | Rachel V. Zucker, W. Craig Carter, Carl V. Thompson | 11:15AM-11:35AM | |
| ICCES1520150524332 | Theory and modeling of frictional loss in two-dimensional and lamellar materials | Alex Smolyanitsky | 11:35AM-11:55AM | |
| ICCES1520150408123 | Effect of structural evolution of nano film under high magnetic field on the variation of magnetic properties | Guojian Li, Qiang Wang, Yongze Cao, Jiaojiao Du, Kai Wang, Jicheng He | 11:55AM-12:20PM | *keynote |
| Theme Session Paper | Advances in Material Science and Engineering D11: Nanomaterials and Low-dimensional Structures Title | Author | Date: July-23 Time: 1:30PM-3:30PM | Room: D |
| ICCES1520150408125 | High Temperature Behavior of Monolayer Transition Metal Dichalcogenides and Their Interaction with Substrate: Dependence on Substrate Type and Bonding | Yong Zhang | 1:30PM-1:55PM | *keynote |
| ICCES1520150525369 | Recent Progress on Synthesis and Characterization of Boron Carbide One-Dimensional Nanostructures | Terry Xu | 1:55PM-2:20PM | *keynote |
| ICCES1520150406114 | Structural evolutions of supported alloy nanoparticles during the melting and coalescence processes by using molecular dynamics simulation | Guojian Li, Qiang Wang, Huimin Wang, Xudong Sui, Yue Zhao, Yonghui Ma | 2:20PM-2:40PM | |
| ICCES1520150529380 | Structural and Optical Properties of the Naked and Passivated Al ₅ Au ₅ Bimetallic Nanocluster. | Rafael Grande-Aztatzi, Elena Formoso, Jose M. Mercero, Jon M. Matxain and Jesus M. Ugalde | 2:40PM-3:05PM | *keynote |
| ICCES1520150505288 | Deformation mechanisms of Cu nanowires with planar defects | Xia Tian, Junzhi Cui, Xingang Yu | 3:05PM-3:25PM | |
| Theme Session Paper | Advances in Material Science and Engineering D12: Nanomaterials and Low-dimensional Structures Title | Author | Date: July-23 Time: 4:00PM-6:00PM | Room: D |
| ICCES1520150627418 | Damage Detection of Composite Structures Using Percolated Carbon Nanotube Networks | Yeong-Tae Jung, Hyung Doh Roh, Changyoon Jeong, Dae Han Sung, Homin Lee, Young-Bin Park | 4:00PM-4:20PM | |
| ICCES1520150430263 | A Study of Mechanical Properties of Multi-Layered Graphene using Modified Nosé-Hoover based Molecular Dynamics | I-Chu Chen, Kun-Ling Chen, Ching-Feng Yu, Hsien-Chie Cheng, and Wen-Hwa Chen | 4:20PM-4:40PM | |
| ICCES1520150430247 | Mechanism of enhancing penetration rate by a new type of composite impact drilling tool | Chunqing Zha, Gonghui Liu, Jun Li, Yumei Li, Miao He | 4:40PM-5:00PM | |
| ICCES1520150525353 | A Novel Autonomous Inflow Control Device Design based on the jet mechanisms of round pipes | Zou Weilin | 5:00PM-5:20PM | |
| ICCES1520150414144 | BEM for simulation of flow of nanofluids | J. Ravnik and L. Skerget | 5:20PM-5:40PM | |
| ICCES1520150313032 | Gel breaking of ammonium persulfate for HEC in salt solution | Yuxiu An, Lingyu Zhang, Rourong Qi, Qingying Ge, Guancheng Jiang | 5:40PM-6:00PM | |
| Theme Session Paper | Poster E01: Poster Title | Author | Date: July-21 Time: 8:30AM-10:15AM | Room: E |
| ICCES1520150506290 | Research on key technology for cracking control of concrete dam in the dry-hot valley | Shuping Huang, Yancai Li | 8:30AM-8:35AM | *poster |

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| ICCES1520150130014 | Experimental Study on Strain Sensing by Small-Diameter FBG | Rong-mei Liu, Da-kai Liang | 8:35AM-8:40AM | *poster |
| ICCES1520150401085 | Model of hydrodynamic pressures in concrete cracks under dynamic load | Chengbin Du, Kaichun Li, Shouyan Jiang | 8:40AM-8:45AM | *poster |
| ICCES1520150522327 | Efficiently realized deterministic nanooptical elements | Dennis Lehr, Kay Dietrich, Thomas Siefke, Ernst-Bernhard Kley | 8:45AM-8:50AM | *poster |
| ICCES1520150402100 | Mechanical characterization of A β amyloid fibrils depend on aromatic residues at atomistic scale | Myeongsang Lee, Inhcui Baek, Hyun Joon Chang and Sungsoo Na | 8:50AM-8:55AM | *poster |
| ICCES1520150402101 | Automatic Inversion of Mechanical Parameters of Surrounding Rock of Underground Cavern Based on Asynchronous Particle Swarm Optimization method and ABAQUS | Lei Xu, Yanchun Lu, Taijun Zhang, Qingwen Ren | 8:55AM-9:00AM | *poster |
| ICCES1520150415157 | With the extended finite element simulation of meso-level concrete tensile damage | Sun Guoli | 9:00AM-9:05AM | *poster |
| ICCES1520150331079 | Analysis and Prediction of Plate Deformation due to the Line Heating Process Considering Multiple Heating Lines | Adán Vega Sáenz, Ninshu Ma and Hidekazu Murakawa | 9:05AM-9:10AM | *poster |
| ICCES1520150416158 | Numerical investigation of cover cracking of reinforced concrete bridge decks due to rebar corrosion | NING XIA | 9:10AM-9:15AM | *poster |
| ICCES1520150430251 | Studies on Lithology Characteristics and Effective Development of Tight Oil Reservoir | Yu-Tian Luo, Ying-Zhi Zhang, Xue-Wu Wang, Ying He | 9:15AM-9:20AM | *poster |
| ICCES1520150429235 | Design and Development of Low Cost Nose Implants Suitable for Asian Face Morphology | Adwait Inamdar, Nikhil Adhe, Sourabh Shende, Rashmi Uddanwadiker and Subhash Lulay | 9:20AM-9:25AM | *poster |
| ICCES1520150414145 | Static Stress Analysis of Carbon Nanotube Reinforced Composite (CNTRC) Stiffened Plates with Central Hole | A G Mujawar and S M Shiyekar | 9:25AM-9:30AM | *poster |
| ICCES1520150402098 | Curves on Real Algebraic Surfaces: Ontology and Interval Extensions | N.M. Glazunov, A.V. Vecherkovskaya | 9:30AM-9:35AM | *poster |
| ICCES1520141209007 | Muscle fatigue evaluation during isometric contraction using surface EMG | Mr. Chetan Kuthe, Dr. R.V. Uddanwadiker, Dr. Alankar Ramteke | 9:35AM-9:40AM | *poster |
| ICCES1520150525365 | On a fast-multipole unified technique for the analysis of different classes of continuum mechanics problems with the boundary element method | Hélvio de Farias Costa Peixoto, Larissa Simões Novelino, Ney Augusto Dumont | 9:40AM-9:45AM | *poster |
| ICCES1520150429228 | CFD Study on the Effect of Support Modes on Aortic Wall Shear Stress and OSI | Kaiyun Gu, Jia Chen, Yu Chang, Bin Gao and Yi Zeng | 9:45AM-9:50AM | *poster |
| ICCES1520150421177 | Buckling of Stiffened Carbon Nano Tube Reinforced Composite (CNTRC) Plates | Wadkar Ranjit and S M Shiyekar | 9:50AM-9:55AM | *poster |
| ICCES1520150402096 | Ontologies, Contexts and Methods to Justification of Conjecture | N.M. Glazunov | 9:55AM-10:00AM | *poster |
| ICCES1520150416163 | Hemodynamic Based Surgical Decision on Sequential Graft and Y-Type Graft in Coronary Artery Bypass Grafting | Xi Zhao, Youjun Liu, Wenxin Wang | 10:00AM-10:05AM | *poster |
| ICCES1520150501265 | Low Cycle Fatigue behaviour of 316 (L)N stainless steel in presence of notch | Richa Agrawala, J. Veerababu, Sunil Goyal, R. Sandhya, Rashmi Uddanwadiker, Pramod Padole | 10:05AM-10:10AM | *poster |
| ICCES1520150403106 | Compressed Sensing by ℓ_1 -Algorithm and its Implementation in Java | N. M. Glazunov, O. V. Kuzik | 10:30AM-10:35AM | *poster |
| ICCES1520150402097 | Ontology of Elastic Bodies and Interval Optimization of their Shapes | N.M. Glazunov, T.V. Nagornyak | 10:35AM-10:40AM | *poster |
| Theme Session Paper | Poster E02: Poster Title | Author | Date: July-21 Time: 10:30AM-12:15PM | Room: E |
| ICCES1520150610402 | Relatively New Schemes for Problems Arising in Engineering and Physical Sciences | Syed Tauseef Mohyud-Din | 10:30AM-10:35AM | *poster |
| ICCES1520140914002 | Hyper-unpredictable new hyperchaotic system | Laouini Chiheb Eddine | 10:35AM-10:40AM | *poster |

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| ICCES1520150610403 | Extended Decomposition Method for Nonlinear Fractional Partial Differential Equations | Jamshad Ahmad | 10:40AM-10:45AM | *poster |
| ICCES1520150402094 | A Power-law Boundary Slip Model of Gas Flows in Micro- Channels | Song Fuquan | 10:45AM-10:50AM | *poster |
| ICCES1520150506289 | An elastic-plastic multi-scale model and analysis method for thermo-mechanical coupled of random heterogeneous materials | Yun Chen, Zihao Yang | 10:50AM-10:55AM | *poster |
| ICCES1520150610404 | Tanh-Coth Method for Nonlinear Differential Equations | Amna Irshad | 10:55AM-11:00AM | *poster |
| ICCES1520150501268 | Damage quantification in plate structures using ultrasonic guided wave imaging | Chenguang Xu, Ying Luo, Baiqiang Xu, Guidong Xu | 11:00AM-11:05AM | *poster |
| ICCES1520150425193 | Synthesis of a gripper mechanism and demonstrating the voice controlled actuation of it. | Prem Auti, Swapnil Pimpalkar and Rashmi Uddanwadiker | 11:05AM-11:10AM | *poster |
| ICCES1520150501269 | Guided ultrasonic waves generated and received by PZT wafer in a Laminated Composite damaged Beam | Baiqiang Xu, Guidong Xu, Chenguang Xu, Ying Luo | 11:10AM-11:15AM | *poster |
| ICCES1520150323059 | An Investigation of Necrosis during Bone Drilling And Development of a Drilling Environment for Orthopedic Treatment | R.V. Dahibhate, A.B. Deoghare, P.M. Padole, P.V. Walke | 11:15AM-11:20AM | *poster |
| ICCES1520150426199 | Experimental researches on the progression of piping around suspended cut-off walls under different fine-particle contents | Jian-sheng Chen, Shuang Wang, Chao Zhang | 11:20AM-11:25AM | *poster |
| ICCES1520150323058 | On explaining the aliasing mechanism of high dimensional harmonic balance method | Honghua Dai, Dan Xie, Xiaokui Yue, Xuechuan Wang | 11:25AM-11:30AM | *poster |
| ICCES1520150501271 | Monitoring of stress concentration and crack growth by strain gradient sensor | Ying Luo, Xingjia Li, Baiqiang Xu, Jun Liu, Chenguang Xu, Ziping Wang | 11:30AM-11:35AM | *poster |
| ICCES1520150330071 | Analysis of influence of array plane error on performances of active phased array antennas | Congsi Wang | 11:35AM-11:40AM | *poster |
| ICCES1520150415152 | Free vibrations of stiffened carbon nano tube reinforced composite (CNTRC) plates | Nikhil Bavane and S M Shiyekar | 11:40AM-11:45AM | *poster |
| ICCES1520150414146 | Numerical solution for the fractional thermo-viscoelasticity equation by the MFS method | Wei Cai, Xing Wei, Wen Chen | 11:45AM-11:50AM | *poster |
| ICCES1520150413139 | Response of Polyurea Coated Composite Plates to Near Field Underwater Explosion Loading Conditions: Experiments and Simulations | James LeBlanc, Christopher Shillings, Erin Gauch, Frank Livolsi, Arun Shukla | 11:50AM-11:55AM | *poster |
| ICCES1520150426204 | In situ observations of crack propagation in an Al-Zn-Mg-Cu alloy | P.C.Bai, F.Liu, X.H.Hou, Y.M.Xing | 11:55AM-12:00PM | *poster |
| ICCES1520150426202 | A semi-discrete Kansa method for a class of time-space fractional diffusion equations | HongGuang Sun, Xiaoting Liu, Chengpeng Lu, Guofei Pang, Wen Chen | 12:00PM-12:05PM | *poster |
| ICCES1520150509299 | FEA for Distortion of Dental Brackets and Its Effect on Orthodontic Mechanics | Vivek Gupta, P. M. Padole, and R.V. Uddanwadiker | 12:05PM-12:10PM | *poster |
| ICCES1520150610405 | Nonlinear Radiative Heat transfer in Two-dimensional Wall Jet Flow | Zulfiqar Ali Zaidi, Umar Khan, Naveed Ahmed | 12:10PM-12:15PM | *poster |
| ICCES1520150423182 | Model of non-linear behavior of liquid flowing in tight formation | Renyi Cao, Xiaofeng Tian, Yang Wang, Na An | 12:15PM-12:20PM | *poster |
| Theme Session Paper | Poster E03: Poster Title | Author | Date: July-21 Time: 1:30PM-3:30PM | Room: E |
| ICCES1520150510304 | Analysis of Isolation Effectiveness of Shear Waves by a Row of Hollow Pipe Piles in Saturated Soils | Ping Xu | 1:30PM-1:35PM | *poster |
| ICCES1520150407118 | Improvement of RPIM in computational efficiency | Zilong Cao, Huancheng Tan, Yupu Guan, Wei Chen | 1:35PM-1:55PM | |
| ICCES1520150612411 | Research on Network Intrusion Detection Based on PCA PSO-BP | Yang Xu, Huanguo Zhang, Xiaoyao Xie | 1:55PM-2:00PM | *poster |
| ICCES1520141023004 | The Impact of Noun Ambiguity in Telugu Language Sentences using CSG Rules: A Modern Approach | J. Sreedhar, S.Viswanadha Raju and A.Vinaya Babu | 2:00PM-2:05PM | *poster |

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| ICCES1520150410134 | Design and Development of Oximeter for Dental Application | Shubham Ramteke,Rashmi Uddanwadiker, Darshan Dakshindas | 2:05PM-2:10PM | *poster |
| ICCES1520150415151 | A Local Quantum-Atomistic-Continuum Model for Mechanical Behaviors at Micro-nano Scales | Tiansi Han, Junzhi Cui, Xingang Yu, Yantao Yang | 2:10PM-2:15PM | *poster |
| ICCES1520150610409 | Influence of Nonlinear Thermal Radiation on the viscous flow through a Deformable Asymmetric Porous Channel: A numerical Study | Naveed Ahmed, Umar Khan | 2:15PM-2:20PM | *poster |
| ICCES1520150306025 | A General Algorithm for Nearly Singular Integrals in Two Dimensional Anisotropic Boundary Element Method | Yan Gu, Zhuojia Fu | 2:20PM-2:25PM | *poster |
| ICCES1520150310029 | Failure simulation study on the rock masses of the dam foundation under earthquake response | Xu J.C | 2:25PM-2:30PM | *poster |
| ICCES1520150410135 | Numerical Simulation of CO2 Flooding Coalbed Methane Considered Fluid-solid Coupling Effect | Jianjun Liu, Guang Li, Hongyuan Li | 2:30PM-2:35PM | *poster |
| ICCES1520150330073 | Numerical Analysis of Vehicle Induced Impact Effect For Highway Cable Stayed Bridge | Zhi Sun, Yafeng Niu | 2:35PM-2:40PM | *poster |
| ICCES1520141001003 | Magnetorheological Rotational Flow | Abbas Hazbavi | 2:40PM-2:45PM | *poster |
| ICCES1520150316037 | The Application of the Combined Drilling Pattern of "pilot +enlargement" in directional well trajectory control | Qimin LIANG Xinyun LIU Libao SHI Ye Tao Lingdong LI | 2:45PM-2:50PM | *poster |
| ICCES1520150416161 | Some applications of fractional differential equations in viscoelastic fluid flow, heat and mass transfer | Liancun Zheng, Shengting Chen, Jize Sui | 2:50PM-2:55PM | *poster |
| ICCES1520150430260 | Research of detecting surface defect quantitatively in thick-walled pipes based on electromagnetic ultrasonic surface wave | He Cunfu, DEng Peng | 2:55PM-3:00PM | *poster |
| ICCES1520150318040 | The Analysis of Lateral Earth Pressures Behind Diaphragm Wall within Rigid Braced System | Liu Chungao | 3:00PM-3:05PM | *poster |
| ICCES1520150407119 | The finite difference schemes for the Six Order phase field crystal equation | H. Y. Cao and Z. Z. Sun | 3:05PM-3:10PM | *poster |
| ICCES1520150323052 | The Analysis of the Choice of Input Factors in Neural Networks Used in the calculation of High Arch Dam's Deformation | Chungao Liu Chongshi Gu | 3:10PM-3:15PM | *poster |
| ICCES1520150420169 | The effects of Intra-Ocular Pressure (IOP) and the external pressure on human eye investigated by Finite Element Analysis | Vishal V Shukla, Pramod M. Padole | 3:15PM-3:20PM | *poster |
| Theme Session Paper | Poster E04: Poster Title | Author | Date: July-21 Time: 4:00PM-6:30PM | Room: E |
| ICCES1520150429244 | Insights into the effects of particle geometries on the interfacial volume fraction in anisotropic particle systems | Wenxiang Xu, Han Wang, Yanzhe Niu | 4:00PM-4:05PM | *poster |
| ICCES1520150330074 | Numerical And Analytical Analysis Of Rigid Train Induced Dynamic Instability For Railway Girder Bridge | Zhi Sun, Yansheng Feng | 4:05PM-4:25PM | |
| ICCES1520150401089 | Potential and limitations of thermoelectrics in energy sustainability | Tinggang Zhang | 4:25PM-4:30PM | *poster |
| ICCES1520150403104 | Finite element analysis of lamina cribrosa of the cat based on in vivo experiment | Xiuqing Qian, Kunya Zhang, Wei Gao, Shouxin Wang, Zhicheng Liu | 4:30PM-4:55PM | *keynote |
| ICCES1520150513309 | Pore-scale Study about Permeability of Porous Media Based on CT Image Technology | Zisen Wu | 4:55PM-5:00PM | *poster |
| ICCES1520141103005 | Determination of tension softening curves of quasi-brittle materials | Chen Hongniao, Li Yingping, Zhang Huagang | 5:00PM-5:05PM | *poster |
| ICCES1520150403103 | Dislocations in III-Nitride materials | Jun CHEN, Pierre RUTERANA and Huaping LEI | 5:05PM-5:25PM | |
| ICCES1520141115006 | Damage identification in a coupled double-beam system under moving forces | H.J.Xu, Z.R. Lu, J.K.Liu | 5:25PM-5:30PM | *poster |

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| ICCES1520150430245 | A short-working-distance device for surface detection of underwater structures | Cong Liu, Yingjun Xu, Chengfei Wang, Xiaoyuan He | 5:30PM-5:35PM | *poster |
| ICCES1520150501264 | Optimizing the Bridging Particles in Shale Drilling Fluids by Particle Flow Code | Wenyi Chen, Mian Chen, Yan Jin, Yunhu Lu, Min Liu | 5:35PM-5:40PM | *poster |
| ICCES1520150106010 | A Backward Group Preserving Scheme for Solving Backward Sine-Gordon Equation of Dislocations in Metals | Chih-Wen Chang | 5:40PM-5:45PM | *poster |
| ICCES1520150224020 | Environmental Sensitive Cracking and strength prediction model of 110ksi casing steel for sour oil and gas environment | Hou duo, Shi taihe, Chen yuxiang | 5:45PM-5:50PM | *poster |
| ICCES1520150413138 | The Variation Law of Shape Factor for Fractured Carbonate Reservoirs | Shaoyuan Mo, Shunli He, Gang Lei, Guangfeng Liu, Shaohua Gai | 5:50PM-5:55PM | *poster |
| ICCES1520150429227 | A Novel Enhanced Oil Recovery Method by using Polymers of Variable Viscosity | Kaoping Song, Mingxing Bai, Erlong Yang | 5:55PM-6:00PM | *poster |
| ICCES1520150427211 | Prediction on the Formation of Natural Gas Hydrates inside Wellbore in Deep-sea Drilling Process | Ai Chi , Gao Changlong, Hao Ming ,Zhang Bowen | 6:00PM-6:05PM | *poster |
| ICCES1520150610407 | A numerical study on magneto-hydrodynamic and viscous dissipation effects on flow of a Casson fluid between contracting rotating disks | Naveed Ahmed, Umar Khan, Muhammad Zubair | 6:05PM-6:10PM | *poster |
| ICCES1520150610408 | Thermo-diffusion and Diffuso-thermo effects on MHD squeezing flow between parallel disks | Sheikh Irfanullah Khan, Umar Khan, Naveed Ahmed | 6:10PM-6:15PM | *poster |
| ICCES1520150226023 | The numerical simulation of the whole implosion process with multi-layer capsule in ICF | H. Yong, C.L Zhai, S. Jiang | 6:15PM-6:20PM | *poster |
| ICCES1520150428219 | Temperature Prediction Model in wellbore for Deepwater Drilling | S.H. Sun , T. Yi, X.L. Bi, L. Wang, G.Q. Yu | 6:20PM-6:25PM | *poster |
| ICCES1520150507291 | Research on Downhole Anti-subsiding Technology for Shallow Heavy Oil | Xueqi Cen,Xiaodong Wu ,Sheng-en Gao, Shu Wei, Lei Zheng | 6:25PM-6:30PM | *poster |
| ICCES1520150430255 | Study on fine particle migration model induced by seepage | Mei-li Zhan, Yuan Wei, Qing-fu Huang, Jin-chang Sheng | 6:30PM-6:35PM | *poster |
| ICCES1520150508293 | Numerical Simulation Study of Shale Gas Reservoir with Fracture Stress-Sensitivity using Multiscale Discrete Fracture Network Model | Mi Lidong, Jiang Hanqiao, Li Junjian, Pei Yanli, Ding Shuaiwei,Liu Chuanbing | 6:35PM-6:40PM | *poster |
| ICCES1520150417165 | Second-order asymptotic analysis method and computation for dynamic thermo-mechanical coupling problem of composite material in axisymmetric structure | Qiang Ma, Zhihui Li and Junzhi Cui | 6:40PM-6:45PM | *poster |
| ICCES1520150508294 | Experiments of Fracturing and Fracture Morphology Analysis of Shale Gas Reservoir | Zhao Lin, Wang Zhi Ming, Gao Hong, Bi ie Fu | 6:45PM-6:50PM | *poster |
| ICCES1520150402099 | Experimental investigation on natural convection over a flat plate: Implications of heat interaction with an external heat sink | Chhaya Warathe, Shivanshu Chalotra, and Vinayak Malhotra | 6:50PM-6:55PM | *poster |