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ICCES'13 Seattle, USA
May 24 – 28, 2013

About ICCES

ICCES is an organization of highly reputed international researchers, from academia, industry, and governments across the world, in the general disciplines of computational and experimental engineering and sciences. It was founded in 1986 by [Prof. Satya N. Atluri](#). ICCES held the international meetings as follows:

- ICCES 1986 in Tokyo, Japan;
- ICCES 1988 in Atlanta, USA;
- ICCES 1991 in Melbourne, Australia;
- ICCES 1992 in Hong Kong, China;
- ICCES 1995 in Big Island, Hawaii, USA;
- ICCES 1997 in San Jose, Costa Rica;
- ICCES 1998 in Atlanta, USA;
- ICCES 2000 in Los Angeles, USA;
- ICCES 2001 in Puerto Vallarta, Mexico;
- ICCES 2002 in Reno, USA;
- ICCES 2003 in Corfu, Greece;
- ICCES 2004 in Madeira, Portugal;
- ICCES 2005 in Chennai, India;
- ICCES 2007 in Miami, USA;
- ICCES 2008 in Honolulu, USA;
- ICCES 2009 in Phuket, Thailand;
- [ICCES 2010 in Las Vegas, USA.](#)
- [ICCES 2011 in Nanjing, China.](#)
- [ICCES 2012 in Crete, Greece.](#)

Each year, ICCES conferences bring together more than 500 of the world's most respected researchers in the disciplines such as Nanoscience and Technology; Nanostructured Materials; Engineering, Biology and Medicine; Bio-MEMS/Bio-NEMS/Labs-on-Chips/Life-Chips, Complex Engineering Systems; Molecular and Cellular Biomechanics; Computers, Materials, & Continua; Computer



Modeling in Engineering & Sciences; Sustainability, Environment, & Climate; Disaster Prevention & Control; Computational Biology, Biomechanics and Bioengineering; Meshless and Novel Computational Methods; Soft Computing and Fuzzy Logic, etc.

The main focus of ICCES is to bring out interactions between engineering, life sciences, and the physical sciences, and to promote research at their interfaces, so that the fast-paced developments in these disciplines can be quickly translated in to engines for global economic growth. ICCES conferences have attracted the attention of various national academies , national governments, and multinational corporations.

- The conference in 1991 was inaugurated by the Minister of Science in Australia;
- the conference in 1997 was inaugurated by the Minister of Education and Technology of Costa Rica.
- The conference in Chennai, India in 2005 was opened with a comprehensive inaugural address on Science Policy by His Excellency Dr. APJ Abdul Kalam, The President of the Republic of India . The conference in Chennai was also financially supported by such industrial giants as Tata Consultancies, Cater Pillar, etc.

ICCES has instituted many Awards, to recognize distinguished researchers for their lifetime contributions, outstanding young and promising researchers, as well as those for their multifaceted contributions to betterment of humanity through engineering, industry, commerce, and the sciences. The highest Award of ICCES ([the Satya N. Atluri Medal](#)), named after the Founder of ICCES) was given in 2010 to [Dr. Ratan Naval Tata](#) (Chairman of [Tata Sons](#) of Mumbai, India, a privately held conglomerate with assets of over 4 Trillion US \$s), in recognition of his foresight in to the Nano-World, and for his continuation of his family's legendary philanthropy. The Plenary Lecture given by Dr. Tata at ICCES 2010 is posted at: <http://www.icces.org/icces10/plenary.html>.

In continuing the great tradition of the previous ICCES conferences, ICCES2013 is being held in Seattle, USA. ICCES extends the warmest welcome the world's leading researchers in computational and experimental engineering and the sciences, to confer in Crete to exchange their ideas, and participate in the social gatherings for scientific networking.

ICCES'13 Organizing Committee.

ICCES 2013

The ICCES Conference, ICCES'13 will be held during May 24–28, 2013: Seattle, USA.

Quick links

- Important Conference Dates: Link to [Deadlines](#)
- Paper Submission and Conference Registration: Link to [Author's Guide](#)
- Organize a Special Symposium: please email to icces@icces.org

ICCES'13

Technical Program: ICCES'13 Seattle, USA

May 24 - May 28, 2013, Seattle, USA

Theme Session Paper	Opening Ceremony P01: Opening Ceremony Title	Author	Date: May-24 Time: 11:00AM-12:30PM	Room: P
ICCES1320130429338	Leadership Matters	John White	11:00AM-11:45AM	*plenary
Theme Session Paper	Advances in Materials Science and Engineering A01: Symposium in Honour of Dr. Vinod Tewary Title	Author	Date: May-24 Time: 8:00AM-10:30AM	Room: A
ICCES1320130412300	Modeling of phonon transport in graphene with antidots for thermoelectric applications	V.K. Tewary	8:00AM-8:30AM	*award
ICCES1320130121104	Effect of in situ high magnetic field application on the growth of molecular-beam-vapor-deposited Ni ₄₅ Fe ₅₅ nanocrystalline films	Guojian Li, Yongze Cao, Qiang Wang, Jiaojiao Du, Jicheng He	8:30AM-8:55AM	*keynote
ICCES1320130412298	Computational Modeling of Nanostructured Materials for Novel Energy Application	Ming Hu	8:55AM-9:13AM	
ICCES1320130226191	Raman Spectroscopy and Molecular Dynamics Simulation Studies of Carbon Nanotubes	Prabhakar Misra, Daniel Casimir and Raul Garcia-Sanchez	9:13AM-9:31AM	
ICCES1320130304217	Multilayer Graphene/Noble Metal Systems for Low - Loss Plasmonics Applications	L. Rast, T. J. Sullivan, and V. K. Tewary	9:31AM-9:49AM	
ICCES1320130328278	Laser induced local structural and property modification	Yong Zhang	9:49AM-10:14AM	*keynote
ICCES1320130508366	Atomic Origins of Plasticity in Crystalline and Amorphous Quasi-1D Nanostructures	Lisa Y. Chen, Mo-rigen He, Daniel J. Magagnosc, Kathryn F. Murphy, Daniel S. Gianola	10:14AM-10:32AM	
Theme Session Paper	Advances in Materials Science and Engineering A03: Metamaterials Title	Author	Date: May-24 Time: 1:30PM-3:30PM	Room: A
ICCES1320130207146	Recent Progress on LTCC-Based Super-Compact Multilayer Composite Right/Left-Handed Transmission Lines	Yasushi Horii	1:30PM-1:55PM	
ICCES1320130216166	Enhanced Bandwidth of a Slotted Mushroom Zeroth-Order Resonator Antenna based on Metamaterials	Cherl-Hee Lee, Jonghun Lee, Dong-Sik Woo, Kang-Wook Kim	1:55PM-2:20PM	
ICCES1320130301212	Holographic Metasurfaces	Patrice Genevet, Jiao Lin, Federico Capasso	2:20PM-2:45PM	
ICCES1320130218170	Theory and Design of Artificial-Impedance-Surface Antennas	D.J. Gregoire and J.S. Colburn	2:45PM-3:10PM	
ICCES1320130305228	Metamaterials with Quantum Gain	Kosmas L. tsakmakidis and Ortwin Hess	3:10PM-3:35PM	
Theme Session Paper	Advances in Materials Science and Engineering A04: Metamaterials Title	Author	Date: May-24 Time: 4:00PM-6:30PM	Room: A
ICCES1320130215163	Building Blocks in Photonic Metamaterials and Their Application for Subwavelength Optical Devices	Masanobu Iwanaga	4:00PM-4:25PM	
ICCES1320130226193	Quantitative Metamaterial Property Extraction	D. Schurig	4:25PM-4:50PM	*keynote
ICCES1320130224184	Optical Hyperspace: light propagation and related phenomena in metamaterials with hyperbolic dispersion	E. E. Narimanov	4:50PM-5:15PM	
ICCES1320130227200	Radiation pressure on nanostructured optical materials	Jeremy N. Munday	5:15PM-5:40PM	
ICCES1320130213152	Metamaterial Based Spatial Light Modulators for THz Imaging	Claire M. Watts, David Shrekenhamer, Willie J. Padilla	5:40PM-5:58PM	
ICCES1320130313246	Plasmonic switching using an electromagnetically induced transparency feature	B. S. Ham	5:58PM-6:23PM	
Theme Session Paper	Advances in Materials Science and Engineering A05: Metamaterials Title	Author	Date: May-25 Time: 8:00AM-10:00AM	Room: A

ICCES1320130406291	Emerging Trends in Metamaterials and Plasmonics	David R. Smith	8:00AM-8:40AM	*theme
ICCES1320130214158	Temporal Control of Terahertz Waves with Metamaterials	F. Miyamaru	8:40AM-9:05AM	
ICCES1320130224181	A physical modeling explaining the giant plasmonic enhancement difference between fluorescence, resonance and non-resonance Raman scattering	Greg Sun	9:05AM-9:30AM	
ICCES1320130215164	Routing of deep-subwavelength optical beams without reflection and diffraction using infinitely anisotropic metamaterials	Peter B. Catrysse and Shanhui Fan	9:30AM-9:55AM	
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems A06: Calculations and Experiments for Petroleum Engineering (Materials) Title	Author	Date: May-25 Time: 10:30AM-12:30PM	Room: A
ICCES1320130119073	Adaptability Evaluation of Coal-bed Methane Well Completion Methods based on Multi-objective Decision-making Method	Gang Yang, Zhiming Wang	10:30AM-10:48AM	
ICCES1320130411297	A novel temperature-resistant and salt-tolerant surfactant for enhanced oil recovery	Jixiang Guo, Xiao Shi, Jingjing Cao, Wenming Wu, Lei Wang	10:48AM-11:06AM	
ICCES1320130204136	Permeation Mechanism and Optimal Design Method of fishbone well pattern for oil production	Shao-hua Gu, Yue-tian Liu, Long-yu Han, Cheng-xia Wu	11:06AM-11:31AM	*keynote
ICCES1320130120081	Pulsed Power for Magnetic Induction Communication	Di Niu , Kai Shuang, Weigen Li	11:31AM-11:49AM	
ICCES1320130120079	Feasibility Research of Steam-Assisted-Gravity-Drainage Process in Bohai Offshore Heavy Oil Reservoirs	Xiaohu Dong, Huiqing Liu, Xiaohong Liu, Zhennan Gao	11:49AM-12:07PM	
ICCES1320130119074	Comparative Study on Passive Inflow Control Devices by Numerical Simulation	Quanshu Zeng, Zhiming Wang	12:07PM-12:25PM	
Theme Session Paper	Solid Mechanics A07: Symposium in Honour of Prof. Wen-Hwa Chen (Materials) Title	Author	Date: May-25 Time: 1:30PM-3:30PM	Room: A
ICCES1320121224024	Tensile Creep Study and Mechanical Properties of Carbon Fiber Nano-Composites	Yi-Luen Li, Wei-Jen Chen, Chin-Lung Chiang, Ming-Chuen Yip	1:30PM-1:55PM	*keynote
ICCES1320121214019	Correspondence Relations for Fracture Parameters of Interface Corners in Anisotropic Viscoelastic Materials	Chyanbin Hwu, Tai-Liang Kuo	1:55PM-2:13PM	
ICCES1320121224026	Solutions of a Crack Interacting with Tri-Material Composite in Plane Elasticity	C.K. Chao and A. Wikarta	2:13PM-2:38PM	*keynote
ICCES1320121226027	Development of the coupled IEM/FEM algorithm for Mindlin–Reissner plate theory applied on bending plate containing through-thickness holes	De-Shin Liu, Chin-Yi Tu, Cho-Liang Chung	2:38PM-2:56PM	
ICCES1320121230043	Combination of Finite Element Analysis with Accelerated Life Testing in Studying the Reliability of Electronic Packaging	Wen-Fang Wu, Si-Lih Chen and Po-Lun Chou	2:56PM-3:14PM	
Theme Session Paper	Advances in Materials Science and Engineering A08A: Metamaterials Title	Author	Date: May-25 Time: 4:00PM-5:15PM	Room: A
ICCES1320130305224	Computational Modeling of Metamaterials: Complex Building Blocks and Large Area	Hossein Mosallaei	4:00PM-4:18PM	
ICCES1320130210149	Perfect invisibility using negative refractive index metamaterials	Tomoshiro Ochiai	4:18PM-4:43PM	
ICCES1320130224180	Active Metamaterials for Modulators and Detectors	Sameer Sonkusale	4:43PM-5:08PM	
Theme Session Paper	Advances in Materials Science and Engineering A08B: Symposium in Honour of Dr. Vinod Tewary Title	Author	Date: May-25 Time: 5:15PM-6:30PM	Room: A
ICCES1320130122109	3D Architectures of Carbon Nanostructured Materials	Yung Joon Jung	5:15PM-5:33PM	
ICCES1320130123116	Effects of high magnetic field and post-annealing on the evaporated Ni/Si (100) thin films	Jiaojiao Du, Guojian Li, Qiang Wang, Yongze Cao, Yonghui Ma, Jicheng He	5:33PM-5:51PM	

ICCES1320130418306	Electronic properties of III-V quantum dots via effective mass and linear scaling tight-binding models	Harley T. Johnson and Brian McGuigan	5:51PM-6:16PM	*keynote
Theme Session Paper	Advances in Materials Science and Engineering A09: Symposium in Honour of Dr. Vinod Tewary	Author	Date: May-27 Time: 8:00AM-9:10AM	Room: A
ICCES1320130325271	Real-Time "Health" Monitoring of Structures & Components with Advanced NDE, Multi-Scale Modeling, & Modern Statistics	Jeffrey T. Fong, James J. Filliben, N. Alan Heckert, and William F. Guthrie	8:00AM-8:25AM	*keynote
ICCES1320130408294	Interactions of same-row vacancies on rutile TiO ₂ (110)	Cristian V. Ciobanu	8:25AM-8:50AM	*keynote
ICCES1320130416304	Recent Progress on Synthesis and Characterization of Boron-based One-Dimensional Nanostructures	Terry Xu	8:50AM-9:08AM	
Theme Session Paper	Advances in Materials Science and Engineering A10: Metamaterials	Author	Date: May-27 Time: 9:15AM-12:30PM	Room: A
ICCES1320130227199	Collective response of metamaterial arrays	Stewart Jenkins and Janne Ruostekoski	9:15AM-9:40AM	
ICCES1320130216165	Liquid crystal based plasmonic metamaterials	T. Scharf, J. Dintinger, B.J. Tang, G. H. Mehl, X. Zeng, G. Ungar, S. Mühlig, T. Kienzler and C. Rockstuhl	9:40AM-10:05AM	*keynote
ICCES1320130224182	Gradient index optical cavities	Aaron J. Danner, Tomáš Tyc, Alireza Akbarzadeh	10:30AM-10:48AM	
ICCES1320130214159	Soft Computing for Terahertz Metamaterial Absorber Design for Biomedical Application	Balamati Choudhury, B. Thiruvani, Pavani Vijay Reddy, R. M. Jha	10:48AM-11:06AM	
ICCES1320130214157	EM Analysis of Metamaterial based Radar Absorbing Structure (RAS) with Dual-resonant Characteristics	Shiv Narayan , S. Latha, and R. M. Jha	11:06AM-11:24AM	
ICCES1320130215161	Chiral meta-molecule and meta-interface	Satoshi Tomita	11:24AM-11:49AM	
Theme Session Paper	Solid Mechanics B01: Symposium in Honour of Prof. Wen-Hwa Chen	Author	Date: May-24 Time: 8:00AM-10:30AM	Room: B
ICCES1320130318262	Meshless Analysis for Three-dimensional Problems with Complicated Geometry and Extremely Large Deformation	Wen-Hwa Chen	8:00AM-8:40AM	*theme
ICCES1320121227028	Analysis with STL geometry	Ming-Hsiao Lee	8:40AM-8:58AM	
ICCES1320121228031	The design of a pneumatic wind energy collection and storage system	Dein Shaw, Yuan-Cheng Sun and Chien-Ting Liu	8:58AM-9:16AM	
ICCES1320121229041	The Mechanical Properties of Carbon Nanotubes Ropes Using Atomistic-Continuum Mechanics and the Equivalent Methods	C.J. Huang, T.Y. Hung and K.N. Chiang	9:16AM-9:41AM	*keynote
ICCES1320130101051	Studies on Nanomechanical Properties of Visco-Elastoplastic Material of Dragonfly Wing Membrane using Nanoindentation	K.Ting, C.H. Chang, J.S. Wu, K.T. Chen, C.H. Huang	9:41AM-9:59AM	
ICCES1320121210012	Image Processing Study on Monitoring Individual Drosophila	Yu-Ching Lin, Hung-Yin Tsai	9:59AM-10:17AM	
ICCES1320130313245	CAPACITIVELY CATENARY FEEDBACK CONTROL FOR OPEN-TYPE DIGITAL MICROFLUDICS	Yi-Chi Kung and Rongshun Chen	10:17AM-10:35AM	
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems B03: Calculations and Experiments for Petroleum Engineering (Numerical Modeli	Author	Date: May-24 Time: 1:30PM-3:30PM	Room: B
ICCES1320130120077	A fast forward algorithm for LWD GR log response based on geological model and it's geosteering application	CaiRui Shao, XianJun Cao, FuMing Zhang, GuoXing Chen, JiaQi Ji, JianHong Tang	1:30PM-1:48PM	
ICCES1320130119075	Solution of Nonlinear seepage model for well group in fractured low-permeability reservoirs	Gu Jian-wei , Liu Yang , Zeng Qing-dong	1:48PM-2:06PM	

ICCES1320130121095	Analysis and design of coiled tubing drilling downhole instrument bus	Tao Liu , Kai Shuang, and Hongming Cai	2:06PM-2:24PM	
ICCES1320130123115	Study on the Four-Dimensional Heterogeneity Model of Non-Marine Sandstone Reservoir	Shaochun Yang, Yaru Wen, Guoning Chen, Ke Yan	2:24PM-2:42PM	
ICCES1320130123117	Helical Buckling Analysis of tubular with Friction in Horizontal Well	Fengwu Liu and Deli Gao	2:42PM-3:00PM	
ICCES1320130311236	Stress and Fractures Study in Tight Reservoir	Guangfeng Liu, Jianguo Wang, Hongjun Lu, Shunli He, Shuai Li, Guojia Cao	3:00PM-3:25PM	*keynote

Theme Session Paper	Solid Mechanics B04: Symposium in Honour of Prof. Mich Nakagaki Title	Author	Date: May-24 Time: 4:00PM-6:30PM Time	Room: B
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ICCES1320130121103	Three Dimensional Aspects of Weld Modeling and Crack Growth in Weld Residual Stress	Frederick W. Brust	4:00PM-4:18PM	
ICCES1320130217168	J and Interaction Integral Evaluations with Tetrahedral Finite Element –Revisiting the numerical algorithms –	Hiroshi Okada, Shogo Ohata and Ryutaro Daimon	4:18PM-4:36PM	
ICCES1320130225186	Adaptive meshfree method with nodal relocation for crack problems	Seiya Hagihara, Yutaka Hayama, Shinya Taketomi and Yuichi Tadano	4:36PM-4:54PM	
ICCES1320130318259	Concept of Inherent Deformation and a Practical Method to Predict Distortion Produced on Large Thin Plate Structures during Welding Assembly	H. Murakawa, Y. Okumoto, S. Rashed, M. Sano	4:54PM-5:12PM	
ICCES1320130418307	Multi-scale Simulation of Severe Plastic Deformation Process Using Marker Integration Eulerian Finite Element Method	Takahiro Yamada and Kazumi Matsui	5:12PM-5:30PM	
ICCES1320130506345	Advanced materials and composites, deformation and failure mechanisms, fatigue and fracture	Golam Newaz	5:30PM-5:48PM	

Theme Session Paper	Advances in Materials Science and Engineering B05: Symposium in Honour of Dr. Vinod Tewary (Modeling & Simulation) Title	Author	Date: May-25 Time: 8:00AM-10:00AM Time	Room: B
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ICCES1320130402285	Numerical Simulation of Nano-Structure Formation under Ion-beam Irradiation in Binary Materials	Efraín Hernández-Rivera and Veena Tikare	8:00AM-8:18AM	
ICCES1320130311239	Group for Simulation and Theory of Atomic-scale Material Phenomena	Moneesh Upmanyu	8:18AM-8:36AM	
ICCES1320130405289	Basal Dislocations and Kinking in Graphite	Bo Yang	8:36AM-8:54AM	
ICCES1320130408295	Modeling of Interfaces in Carbon Nanotube Reinforced Ceramic Nanocomposites	Zhenhai Xia	8:54AM-9:19AM	*keynote
ICCES1320130414302	Semiconductor Quantum Dots: From Atoms to Devices	R.S. Goldman	9:19AM-9:44AM	*keynote
ICCES1320130402286	GRAPHENE BASED NANOSTRUCTURES: ELECTRONIC PROPERTIES	Ravindra Pandey	9:44AM-10:02AM	

Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems B06: Calculations and Experiments for Petroleum Engineering (Numerical Modeli Title	Author	Date: May-25 Time: 10:30AM-12:30PM Time	Room: B
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ICCES1320130121097	Fluid Potential Analysis in Reservoir Development – A new method for Remaining Oil Characterization	Xu Zhaohui, Xu Huaimin, Zheng Ke, Wei Qiren	10:30AM-10:48AM	
ICCES1320130226195	A New Method of Dynamic Reserve Estimation for Dual-Porosity Gas Reservoir with Horizontal Well	Leng Tian, Hao Ma, Shun-li He, Dai-hong Gu	10:48AM-11:06AM	
ICCES1320130121101	An Semi-Analytical Models to Investigate Performance of Herringbone Wells	Guoqing Han, Xiaodong Wu, He Zhang	11:06AM-11:31AM	*keynote
ICCES1320130124122	A New Solution Algorithm for Multi-Dimensional Reservoir Simulation	Boyun Guo	11:31AM-11:56AM	*keynote
ICCES1320130317255	A Productivity Prediction Model for the Complex Well with Formation Damage	Yongsheng An	11:56AM-12:14PM	

Theme Session	ICCES Meshless Method 2013 B07: ICCESMM'13: on MLPG, Trefftz, MFS, BEM, and Other Meshless Methods		Date: May-25 Time: 1:30PM-3:30PM	Room: B
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Paper	Title	Author	Time	
ICCES1320130406290	A set-based dynamic eigenvalue analysis method using Kriging model and PSO algorithm	ZiChun Yang, WenCai Sun	1:30PM-1:55PM	*keynote
ICCES1320130228205	Recent works on numerical methods for fractional diffusion equations	HongGuang Sun	1:55PM-2:13PM	
ICCES1320130206145	A simple meshless LBIE-LRBF method for transient elastic problems	E.J. Sellountos, T. Gortsas, D. Polyzos	2:13PM-2:31PM	
ICCES1320130317256	Newly-developed finite elements for modeling functionally graded materials (FGM) in micro- and macro-scales	Peter L. Bishay, Satya N. Atluri	2:31PM-2:49PM	
ICCES1320130424319	Numerical solution of quenching problems using orthogonal trigonometric functions	Haiyan Tian	2:49PM-3:07PM	
ICCES1320130414303	Application of the Trefftz method on the Basis of Stroh Formalism to Inverse SHM Problem of Anisotropic Elasticity	Tao. Zhang and S.N. Atluri	3:07PM-3:25PM	
Theme Session Paper	ICCES Meshless Method 2013 B08: ICCESMM'13: on MLPG, Trefftz, MFS, BEM, and Other Meshless Methods	Author	Date: May-25 Time: 4:00PM-6:30PM	Room: B
ICCES1320121123002	A Study of the Cutting Temperature in Milling Stainless Steels with Chamfered Main Cutting Edge Sharp Worn Tools	Chung-Shin Chang	4:00PM-4:18PM	
ICCES1320130204137	Singular Boundary Method for Exterior Wave Problems	Zhuo-Jia Fu, Wen Chen	4:18PM-4:36PM	
ICCES1320130423314	Trefftz Voronoi Cells (TVC) for Micromechanical Modeling of Heterogeneous Materials	Leiting Dong and Satya N. Atluri	4:36PM-4:54PM	
ICCES1320130101053	Finite Element Solution of a Small Perturbation in Thermo-Elastic Instability Systems	Abdullah M. Al Shabibi	4:54PM-5:12PM	
ICCES1320121210013	The canonical reduction of four-dimensional self-dual Yang-Mills theory to equations which describe pseudo-spherical surfaces	S. M. Sayed	5:12PM-5:30PM	
ICCES1320121123003	Haar Wavelet Operational Matrix Method for Solving Fractional Partial Differential Equations	Yiming Chen, Mingxu Yi	5:30PM-5:48PM	
ICCES1320130223177	Fast Regularized Boundary Integral Method for Acoustic Problems	Z.Y. Qian, Z.D. Han, and S.N. Atluri	5:48PM-6:13PM	*keynote
ICCES1320130425331	Development of Multidisciplinary Optimization Framework using PSO algorithm and its applications	Kook Jin Park, Nitesh Kumar Karma, Hee Jin Kang and Seung Jo Kim	6:13PM-6:31PM	
Theme Session Paper	Solid Mechanics B09: Comp. Fracture Mechanics; Structural Integrity & Health Monitoring	Author	Date: May-27 Time: 8:00AM-10:00AM	Room: B
ICCES1320130122112	Structural Analysis of a Lab-Scale PCHE Prototype under the Test Conditions of the HELP	Keenam Song and S. D. Hong	8:00AM-8:18AM	
ICCES1320130224183	Particle-based method for dynamic propagation of cracks with energy balance consideration	Kenji Oguni and Masanori Kondo	8:18AM-8:43AM	*keynote
ICCES1320130225185	Non-Destructive Assessment of the Historic	Salah Amer	8:43AM-9:01AM	
ICCES1320130422311	Challenges in Predicting Wear Rate	Zhong-Sheng Liu, Cheng Haung, Liang Ma, Jimmy Jiang, Yongxong Xie, Rob Hui	9:01AM-9:19AM	
Theme Session Paper	ICCES Meshless Method 2013 B10: ICCESMM'13: on MLPG, Trefftz, MFS, BEM, and Other Meshless Methods	Author	Date: May-27 Time: 10:30AM-12:30PM	Room: B
ICCES1320130423312	SGBEM Voronoi Cells (SVC) for Micromechanical Modeling of Heterogeneous Materials	Leiting Dong and Satya N. Atluri	10:30AM-10:48AM	
ICCES1320130206144	A MESHLESS APPROACH FOR MODELLING OF THREE DIMENSIONAL MACROSEGREGATION IN CONTINUOUS CASTING OF STEEL	R. Vertnik, B. Sarler	10:48AM-11:06AM	

ICCES1320130102054	A Multi-scale Characteristic Time Expansion Method with the Natural Regularization Method for Restoring Force Identification	Yung-Wei Chen, Jiang-Ren Chang, Fu-Hsuan Hsieh, Che-Wei Chen	11:06AM-11:24AM	
ICCES1320130301211	Nonlinear dynamics of a multi-coupled system with multiple delays	Xiaochen Mao	11:24AM-11:42AM	
ICCES1320130325273	Solving 2D Shallow-Water Equations by Extrapolated Local Radial Basis Function Collocation Method	Ching-Kai Chou, Chia-Peng Sun, Der-Liang Young	11:42AM-12:00PM	
Theme Session Paper	ICCES Meshless Method 2013 C01: ICCESMM'13: Advances in Sciences and Engineering Title	Author	Date: May-24 Time: 8:00AM-10:30AM	Room: C
ICCES1320130323267	Quantitative NDE and Bayesian Fatigue Modeling: Key to Improving Reliability of Aging Structures and Components	Jeffrey T. Fong	8:00AM-8:40AM	*theme
ICCES1320130429335	Challenges of Biomechanics	Konstantin Volokh	8:40AM-9:20AM	*theme
ICCES1320130429337	Universal patterns in bone composition and microstructure: a multiscale engineering science approach	Christian Hellmich	9:20AM-10:00AM	*theme
ICCES1320130426332	Representation of vector-valued hemitropic functions of a symmetric tensor and a vector.	Ellis Harold Dill	10:00AM-10:30AM	*award
Theme Session Paper	ICCES Meshless Method 2013 C03: ICCESMM'13: on MLPG, Trefftz, MFS, BEM, and Other Meshless Methods Title	Author	Date: May-24 Time: 1:30PM-3:30PM	Room: C
ICCES1320130404288	The local Radial Basis Function Finite Collocation Method a not Generalized Finite Different Meshless Scheme for High-Convergence Solution of Boundary Value Problems	H. Power, D. Stevens and A. Cliffe	1:30PM-1:55PM	*keynote
ICCES1320130122108	Meshfree MLPG modeling of magnetotelluric data: a new modeling tool in numerical geophysics	Jan Wittke, Bülent Tezkan	1:55PM-2:13PM	
ICCES1320130428333	Meshless formulations for bending of thin plates with variable stiffness	V. Sladek, J. Sladek, L. Sator	2:13PM-2:38PM	*keynote
ICCES1320130211151	Application of different variants of the BEM in numerical modeling of bioheat transfer problems	Ewa Majchrzak	2:38PM-2:56PM	
ICCES1320130227198	Localized radial basis function solutions for calcium dynamics model in ventricular myocytes	Guangming Yao	2:56PM-3:14PM	
ICCES1320130326276	On solving the nonlinear backward heat conduction problem using the double iteration algorithm	Weichung Yeih, Jiang-Jhy Chang, Chen-Yu Ku and Chia-Min Fan	3:14PM-3:32PM	
Theme Session Paper	ICCES Meshless Method 2013 C04: ICCESMM'13: on MLPG, Trefftz, MFS, BEM, and Other Meshless Methods Title	Author	Date: May-24 Time: 4:00PM-6:30PM	Room: C
ICCES1320130218169	Modeling of porous piezoelectric structures by the MLPG	J. Sladek, V. Sladek, and E. Pan	4:00PM-4:25PM	*keynote
ICCES1320130502342	The MLPG methods based on the energy invariant principles for heterogeneous materials	Z.D. Han and S. N. Atluri	4:25PM-4:43PM	
ICCES1320130124123	Fast multipole singular boundary method for large-scale plane elasticity problems	Wenzhen Qu, Wen Chen	4:43PM-5:08PM	*keynote
ICCES1320130320263	Coupled BEM-MLPG acoustic analysis for non-homogeneous media	A. Tadeu, P. Stanak, J. Sladek, V. Sladek, ITeCons	5:08PM-5:33PM	*keynote
ICCES1320130424323	Fast Evaluation of the Method of Fundamental Solutions for Solving Reaction Diffusion and Wave Propagation Problems	C.S. Chen, Ji Lin, Wen Chen	5:33PM-5:58PM	*keynote
ICCES1320121228033	Computational modeling of the micro- and macroscopic behavior of multiphase composite and functionally graded materials	Sofia G Mogilevskaya, Steven L Crouch	5:58PM-6:23PM	*keynote
Theme Session Paper	Mechanics of Fluids, gases, and Fluid/MEMS C05: Comp. modeling of complex fluids, particle laden flow, & fluid struct interact Title	Author	Date: May-25 Time: 8:00AM-10:48AM	Room: C

ICCES1320130311237	Modeling and simulation of particle laden thin films	Andrea Bertozzi	8:00AM-8:25AM	*keynote
ICCES1320130304218	Conservation Laws for Particle Laden Thin Films	Aliki Mavromoustaki, Andrea L. Bertozzi	8:25AM-8:43AM	
ICCES1320121215020	Shock solutions for high concentration particle-laden thin films	Li Wang and Andrea L. Bertozzi	8:43AM-9:01AM	
ICCES1320121218022	Particle segregation in spiral channels	Sungyon Lee, Yvonne Stokes, Andrea Bertozzi	9:01AM-9:19AM	
ICCES1320130311241	A second order virtual node method for elliptic problems with interfaces and irregular domains in three dimensions	Joseph Teran	9:19AM-9:44AM	*keynote
ICCES1320121228034	Semi-implicit surface tension formulation with a Lagrangian surface mesh on an Eulerian simulation grid	Craig Schroeder, Wen Zheng, Ronald Fedkiw	9:44AM-10:02AM	
ICCES1320130311243	Energetically Consistent Invertible Elasticity	Alexey Stomakhin	10:30AM-10:48AM	
Theme Session Paper	ICCES Meshless Method 2013 C06: ICCESMM'13: on MLPG, Trefftz, MFS, BEM, and Other Meshless Methods Title	Author	Date: May-25 Time: 10:48AM-12:30PM Time	Room: C
ICCES1320121204009	Two formulations for a fast time domain BEM in elastodynamics	B. Kager, M. Schanz, T. Traub	10:48AM-11:13AM	*keynote
ICCES1320130423313	Fracture & Fatigue Analyses: SGBEM-FEM or XFEM?	Leiting Dong and Satya N. Atluri	11:13AM-11:38AM	*keynote
ICCES1320130228203	Meshless analysis of piezoelectric sensor embedded in composite floor panel	P. Stanak, A. Tadeu, J. Sladek, V. Sladek	11:38AM-11:56AM	
ICCES1320130324268	Solving convection-diffusion problems by local maximum entropy finite element method	C. T. Wu and D. L. Young	11:56AM-12:14PM	
ICCES1320130326274	Using the method of fundamental solutions for obtaining exponentially convergent Helmholtz eigensolutions	Chia-Cheng Tsai and D. L. Young	12:14PM-12:32PM	
Theme Session Paper	ICCES Meshless Method 2013 C07: ICCESMM'13: on MLPG, Trefftz, MFS, BEM, and Other Meshless Methods Title	Author	Date: May-25 Time: 1:30PM-3:30PM Time	Room: C
ICCES1320130213153	A Meshless Method for Calculating 3-D Windfields	D. W. Pepper and C. Rasmussen	1:30PM-1:55PM	*keynote
ICCES1320130324270	Analysis of Multi-dimensional Burgers Equations by Localized Method of Particular Solutions	D. L. Young, C. Y. Lin, M. H. Gu and C.S. Chen	1:55PM-2:20PM	*keynote
ICCES1320130205142	A MESHLESS APPROACH FOR SIMULATION OF STEEL BILLETS ROLLING	B. Sarler, U. Hanoglu	2:20PM-2:45PM	*keynote
ICCES1320130121106	A Scalar Homotopy Method with Optimal Hybrid Search Directions for Solving Nonlinear Algebraic Equations	Weichung Yeih, Cheng-Yu Ku, Chein-Shan Liu, I-Yao Chan	2:45PM-3:03PM	
ICCES1320130317252	The Relationship between Vacuum Residual Petro-Surfonate Structure and Its EOR Property	Bo Peng, Shenke Li, Ke Hu	3:03PM-3:21PM	
Theme Session Paper	ICCES Meshless Method 2013 C08: ICCESMM'13: on MLPG, Trefftz, MFS, BEM, and Other Meshless Methods Title	Author	Date: May-25 Time: 4:00PM-6:30PM Time	Room: C
ICCES1320130102055	Group Preserving Scheme for Simulating Dynamic Ship Maneuvering Behaviors	Yung-Wei Chen, Jiang-Ren Chang, Wun-Sin Jhao, Juan-Chen Huang	4:00PM-4:18PM	
ICCES1320130215162	An adaptive homogenization-based quasi-discrete approach for modeling strain localizing heterogeneous materials	P.Z. Berke, R.H.J. Peerlings, T.J. Massart, M.G.D. Geers	4:18PM-4:36PM	
ICCES1320130328279	Generalized multipole method for solving multiple scattering problems with circular boundaries	Wei-Ming Lee	4:36PM-4:54PM	
ICCES1320130113059	A Fictitious Time Integration Method for Solving Two-Dimensional Groundwater Pollution Source Identification Problems	Chih-Wen Chang	4:54PM-5:12PM	
ICCES1320130320264	Simulation of sound-fields near three-dimensional thin screens using an iterative boundary element approach	J. António, António Tadeu	5:12PM-5:37PM	*keynote

ICCES1320130211150	Numerical modeling of skin tissue heating using the interval finite difference method	Bohdan Mochnacki, Alicja Piasecka-Belkhatay	5:37PM-5:55PM	
ICCES1320130517369	Novel Solution Methods for Nonlinear Structural Dynamics	Lt Col Matt Schnoor	5:55PM-6:13PM	
Theme Session Paper	ICCES Meshless Method 2013 C09: Cell Method and Related Meshless Methods Title	Author	Date: May-27 Time: 8:00AM-10:00AM	Room: C
ICCES1320130323266	Computational physics without starting from the differential equations	Enzo TONTI	8:00AM-8:40AM	*theme
ICCES1320121229040	Thermo-electromagnetic analysis of induction heating process	Fabio Freschi, Luca Giaccone, Maurizio Repetto	8:40AM-8:58AM	
ICCES1320130102056	Nonlinear thermo-elastostatic of an exhaust manifold	C. Delprete, M. Repetto, F. Freschi, C. Rosso	8:58AM-9:16AM	
ICCES1320130205141	A Cell Method Stress Analysis in Thin Floor Tiles Subjected to Temperature Variation	Elena Ferretti	9:16AM-9:41AM	*keynote
ICCES1320130305221	GDQFEM and Cell Method Numerical Simulations of Continuous Media with Cracks and Discontinuities	E. Viola, F. Tornabene, E. Ferretti, N. Fantuzzi	9:41AM-9:59AM	
Theme Session Paper	ICCES Meshless Method 2013 C10: Cell Method and Related Meshless Methods Title	Author	Date: May-27 Time: 10:30AM-12:30PM	Room: C
ICCES1320130305222	On Static Analysis of Composite Plane State Structures via GDQFEM and Cell Method	E. Viola, F. Tornabene, E. Ferretti, N. Fantuzzi	10:30AM-10:55AM	*keynote
ICCES1320130305223	Soft Core Plane State Structures Under Static Loads Using GDQFEM and Cell Method	E. Viola, F. Tornabene, E. Ferretti, N. Fantuzzi	10:55AM-11:13AM	
ICCES1320130401282	The Cell Method: Quadratic Interpolation with Tetrahedra for 3D Scalar Fields	Martino Pani, Fulvia Taddei	11:13AM-11:31AM	
ICCES1320130424318	A Radial Basis Function Based Meshless Approach with the Cell Method	Martino Pani, Fulvia Taddei	11:31AM-11:49AM	
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems D01: Symposium in Honour of Prof. Hehua Zhu, Advances in GeoTech Engng Title	Author	Date: May-24 Time: 8:00AM-10:30AM	Room: D
ICCES1320130429336	From Practice to Theory for Engineering Services	Hehua Zhu	8:00AM-8:30AM	*award
ICCES1320130228202	A 3D Extended Arlequin Method for Quasi-Brittle Dynamic Fracture	Mohammad Silani, Hossein Talebi, Timon Rabczuk	8:30AM-8:55AM	*keynote
ICCES1320130219171	Modelling the joint growth occurred at gentle slope in fractured rock using a meshless method	Xiaoying Zhuang, Hehua Zhu, Yaoji Li, Zhouquan Cui	8:55AM-9:13AM	
ICCES1320130227197	Application of Multi-Fractal and Kriging Interpolation Method For the Re-construction of Strata	Changhong Wang, Yiyang Xu, Hehua Zhu	9:13AM-9:31AM	
ICCES1320130226196	Analysis of ground surface settlement induced by the construction of a large-diameter shield-driven tunnel in Shanghai	Xiongyao Xie, Yubing Yang, Mei Ji	9:31AM-9:56AM	*keynote
ICCES1320130329281	Long-term water seepage monitoring methods in shield tunnel	Shufei Cheng, Hongwei Huang	9:56AM-10:14AM	
ICCES1320121231047	A conceptual framework for structural health monitoring of shield tunnel structure	Y. Lu, H.H. Zhu, X.Y. Zhuang	10:14AM-10:39AM	*keynote
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems D03: Symposium in Honour of Prof. APS Selvadurai Title	Author	Date: May-24 Time: 1:30PM-3:30PM	Room: D
ICCES1320130213154	Contact and Inclusion Problems in Biot Poromechanics	A.P.S. Selvadurai	1:30PM-2:00PM	*award
ICCES1320130120084	Statics and dynamics of Reissner thin plates with embedded fibres resistant in bending	K.P. Soldatos and A.F. Farhat	2:00PM-2:18PM	
ICCES1320130121107	A level set-based microstructure generator for the computational homogenisation of complex heterogeneous materials	B. Sonon, B. Francois, T.J. Massart	2:18PM-2:43PM	*keynote
ICCES1320130127126	On Cause of Wenchuan Earthquake with Gas Expansion and Migration along Crust Fault	Quentin Z. Q. Yue	2:43PM-3:01PM	
ICCES1320121207010	Self-Regularized BEM for Three-Dimensional Elastostatics	M.G. He and C.L. Tan	3:01PM-3:26PM	*keynote

Theme Session Paper	Solid Mechanics D04: Symposium in Honour of Prof. Wen-Hwa Chen Title	Author	Date: May-24 Time: 3:30PM-6:30PM Time	Room: D
ICCES1320121224025	Design and Development of Electromagnetic-type Shock Wave Generation in Liquids	Shen-Min Liang, Ashraful Islam, Wei-Cheng Huang	3:30PM-3:48PM	
ICCES1320121228038	Vibration Analysis for Pizeoelectric Thick Plate Based on Mindlin Theory	Yi-Chuang Wu and Chien-Ching Ma	4:00PM-4:25PM	*keynote
ICCES1320130120089	Dynamic Instability of Rectangular Composite Plates under Parametric Excitation	Meng-Kao Yeh, Chia-Shien Liu, Chien-Chang Chen	4:25PM-4:43PM	
ICCES1320121228037	Fracture Behaviors and Low Temperature Thermal-Mechanical Properties of Graphene Sheet Using a Modified Nosé-Hoover Thermostat	Hsien-Chie Cheng, Ching-Feng Yu, Kun-Ling Chen and Wen-Hwa Chen	4:43PM-5:01PM	

Theme Session Paper	Mechanics of Fluids, gases, and Fluid/MEMS D05: Comp. Fluid/Electromagnetic Dynamics and Parallel Computing Title	Author	Date: May-25 Time: 8:00AM-10:00AM Time	Room: D
ICCES1320130117062	Three-dimensional Fluid Flow Simulations Using GPU-based Particle Method	K. Kakuda, T. Nagashima, Y. Hayashi, S. Obara, J. Toyotani, S. Miura, N. Katsurada, S. Higuchi and S. Matsuda	8:00AM-8:18AM	
ICCES1320130305219	Liquid metal turbulent duct flows in a magnetohydrodynamic power generator	Hiromichi Kobayashi and Yoshihiro Okuno	8:18AM-8:36AM	
ICCES1320130317253	GPU Accelerated Fluid Simulation with Implicit Surface Obstacles	S. Nakata, Y. Sakamoto	8:36AM-8:54AM	
ICCES1320130422310	Fast Implementation of Meshless Time Domain Method for Electromagnetic Wave Propagation Simulation in Complex Shaped Domain	Taku Itoh, Yoshihisa Fujita, and Soichiro Ikuno	8:54AM-9:12AM	
ICCES1320130424316	A Proposal of Hierarchical Decision Making Mechanism for Externally Expandable Game AI and its Effectiveness on Multi-core Environment	Yuki SHIHO, Kensuke KURAMOTO, Masakazu FURUICHI	9:12AM-9:30AM	
ICCES1320130430340	Finite Rotation Transient FE Simulation and Vibration Control of Smart Structures	M.N. Rao, R. Schmidt	9:30AM-9:48AM	

Theme Session Paper	Solid Mechanics D06: Symposium in Honour of Prof. Wen-Hwa Chen (Dynamics) Title	Author	Date: May-25 Time: 10:30AM-12:30PM Time	Room: D
ICCES1320130217167	Stochastic FEM on nonlinear vibration of fluid-conveying double-walled carbon nanotubes subjected to a moving load	Tai-Ping Chang	10:30AM-10:48AM	
ICCES1320121211017	A GL(n,R) Differential Algebraic Equation Method for Numerical Differential of Noisy Signal	Chein-Shan Liu	10:48AM-11:06AM	
ICCES1320121220023	Dynamic stress intensity factors of collinear cracks under a uniform tensile stress wave	Shih-Ming Huang and Kuang-Chong Wu	11:06AM-11:31AM	*keynote
ICCES1320121228036	Process-dependent Thermal-Mechanical Behaviors of an Advanced Thin-Flip-Chip-on-Flex Technology with Anisotropic Conductive Adhesive Joints	Hsien-Chie Cheng, Ching-Feng Yu, Su-Tsai Lu and Wen-Hwa Chen	11:31AM-11:49AM	
ICCES1320130114060	BEM Analysis of Heat Conduction in 3D Thin Anisotropic Media	Y.C. Shiah and Wang Chi-Chang	11:49AM-12:07PM	

Theme Session Paper	Advances in Materials Science and Engineering D07: Mechanics of Composite Materials and Structures Title	Author	Date: May-25 Time: 1:30PM-3:30PM Time	Room: D
ICCES1320130124118	Computer Modeling SiC/SiC Composites	E. Schnack, Y. Zhu	1:30PM-1:48PM	
ICCES1320130130130	Reliability analysis and optimal design of a composite structure under gust loads	Tae-Uk Kim	1:48PM-2:06PM	
ICCES1320130214160	Development of High Performance Temperature Sensors Made from Carbon Nanotube/Polymer Nanocomposites	Alamusi and Ning Hu	2:06PM-2:24PM	
ICCES1320130425330	Local buckling analysis of composite box-type of beams used in timber building structures	S.R. Atashipour, U.A. Girhammar	2:24PM-2:42PM	

Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems D08: Symposium in Honour of Prof. Hehua Zhu, Advances in GeoTech Engng Title	Author	Date: May-25 Time: 4:00PM-6:30PM Time	Room: D
ICCES1320121227029	Influence Analysis of a Metro Shield Tunnel that Underpasses an Underground Passage	Wei Fu	4:00PM-4:18PM	
ICCES1320130429334	Experimental study and numerical simulation on failure process of concrete segmental lining longitudinal joints	Xiaojun Li, Haiping Xia, Hehua Zhu	4:18PM-4:43PM	*keynote
ICCES1320130222176	Study on train vibration response and cumulative deformation of double arch tunnel in Kast foundation	Ming-feng Lei, Li-min Peng, Cheng-hua Shi	4:43PM-5:01PM	
ICCES1320130225188	Stability investigations around a cross harbor tunnel by a morphological visualization method	Z.X. Zhang, J. Wu, Q.H. Lei and C. Liu	5:01PM-5:19PM	
ICCES1320130227201	A dual random two-scale model for estimating the thermal expansion coefficient of early-age concrete	Shu Liu, Xian Liu	5:19PM-5:37PM	
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems D09: Symposium in Honour of Prof. APS Selvadurai (Multiphysics Modeling) Title	Author	Date: May-27 Time: 8:00AM-10:00AM Time	Room: D
ICCES1320130205138	Consolidation of compressible fluid in deep crust	Y. Ichikawa, K. Kawamura, K. Kimoto	8:00AM-8:25AM	*keynote
ICCES1320130205143	Constitutive modeling of saturated clays exhibiting both creep and swelling	Jianhua YIN	8:25AM-8:43AM	
ICCES1320130127125	Dynamic response of borehole in poroelastic medium with disturbed zone	W Kaewjuea, T Senjuntichai and RKND Rajapakse	8:43AM-9:08AM	*keynote
ICCES1320130305225	TRANSIENT RESPONSE OF RIGID FOUNDATIONS EMBEDDED IN TRANSVERSELY ISOTROPIC MEDIA THROUGH AN ITERATIVE DYNAMIC COUPLING SCHEME	J. Labaki, D. A. Damasceno and E. Mesquita	9:08AM-9:26AM	
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems D10: Image Processing and Analysis Title	Author	Date: May-27 Time: 10:30AM-12:30PM Time	Room: D
ICCES1320130101052	Thermo-Mechanical Analysis of Restored Molar Tooth using Finite Element Analysis	R.V.uddanwadiker	10:30AM-10:55AM	*keynote
ICCES1320130208147	Intelligent feedback for robot navigation using NN-methods for electromechanical transmission control	X. M. Garcia-Cruz , O. Yu. Sergiyenko, J.I. Nieto-Hipolito, M. Rivas-Lopez, D. Hernandez-Balbuena, Felix F. Gonzalez-Navarro, L.C. Basaca, J.C. Rodriguez, V.V. Tyrsa, A. Gurko	10:55AM-11:13AM	
ICCES1320130220172	2D-to-3D extension of clinical mandible radiographs, based on X-ray physics of composites	Stefan Scheiner, Christian Hellmich, Christoph Mueller, Cornelia Kober	11:13AM-11:38AM	*keynote
ICCES1320121126007	THE EFFECT OF REGION SEGMENTATION ON OBJECT CATEGORIZATION	Chih-Fong Tsai, Zong-Yao Chen, and Jui-Sheng Chou	11:38AM-11:56AM	
ICCES1320130221174	THE ALGORITHM OF THE ENCIRCLING THERMOGRAMS CREATION IN DIAGNOSTIC SYSTEM SUPPORTING THE WOUNDS HEALING PROCESS	Mirosław Dziejowski, Mariusz Ciesielski, Sebastian Freus	11:56AM-12:14PM	
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems E01: Calculations and Experiments for Petroleum Engineering (Multiphysics) Title	Author	Date: May-24 Time: 8:00AM-10:30AM Time	Room: E
ICCES1320130120094	Some Advances in Modeling & Simulation for Design and Control in Critical Well Engineering	Deli Gao, Boyun Guo	8:00AM-8:40AM	*theme
ICCES1320130307231	The balanced inflow mechanism and water control technology of horizontal wells	Wu Xiaodong, Wang Yining, Wang Ruihe, Han Guoqing, An Yongsheng	8:40AM-9:05AM	*keynote
ICCES1320130118063	Investigation on nitrogen foam assisted steam flooding with sand production	Yongge Liu, Huiqing Liu, Qing Wang, Zhanxi Pang	9:05AM-9:30AM	*keynote

ICCES1320130307232	Research and application of improving the range of horizontal well steam injection heating	Yining Wang, Xiaodong Wu, Ruihe Wang, Rong Chen, Han Wu	9:30AM-9:48AM	
ICCES1320130122110	Research on influence rules of pore structure on water & polymer flooding using Micro-model	Yuan Ying-jie,Hou Ji-ruì,Zhao Feng-lan,Yu Chun-sheng,Zhang Feng-min	9:48AM-10:13AM	*keynote
ICCES1320130312244	Detailed molecular characterization of heavy alkyl benzene sulfonate used for chemical flooding	Gang Liu, Jirui Hou, Fenglan Zhao, Mingyuan Li, Chenyu Wu, Fenggang Wang, Hongda Hao	10:13AM-10:31AM	
Theme Session Paper	Solid Mechanics E03: Symposium in Honour of Prof. In Lee Title	Author	Date: May-24 Time: 1:30PM-3:30PM	Room: E
ICCES1320130421309	Aeroelastic Analysis of a Horizontal Axis Wind Turbine Blade and its Structural Monitoring using Fiber Bragg Grating Sensors	In Lee	1:30PM-2:00PM	*award
ICCES1320121228030	Experimental flutter suppression: Wind tunnel testing	Jae-Hung Han, Jong-Won Lee, and Juho Lee	2:00PM-2:18PM	
ICCES1320121228032	Dynamic Stability Enhancement of Thin Rotating Disks by Rim Reinforcement	Kyo-Nam Koo	2:18PM-2:36PM	
ICCES1320130101048	Development of piezoelectric transducers for structural vibration monitoring and control	Lae-Hyong Kang, and Jung-Ryul Lee	2:36PM-3:01PM	*keynote
ICCES1320130101049	Nonlinear Aeroelastic Characteristics of an Aircraft wing and Missile Control Fin	Jae-Sung Bae, In Lee, Seung-Kil Paek, and Sooyong Lee	3:01PM-3:26PM	*keynote
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems E04: Calculations and Experiments for Petroleum Engineering (Multiphysics) Title	Author	Date: May-24 Time: 4:00PM-6:30PM	Room: E
ICCES1320130205139	The Model Design of Turbine Blade in Oil & Gas Drilling	Chunfei Tan, Baoshan Guo	4:00PM-4:18PM	
ICCES1320130120076	Study of LWD data visual interpretation and geosteering technology in real time	SHAO CaiRui, ZHANG FuMing, CHEN GuoXing, TANG HaiQuan, Cao XianJun	4:18PM-4:43PM	*keynote
ICCES1320130308233	Quantitative Identification and 3D Modeling for Interlayer in Delta Reservoir	Yaru Wen, Shaochun Yang, Yan Wang	4:43PM-5:01PM	
ICCES1320130304216	Permeation Mechanism and Optimal Design Method	Shao-hua Gu, Yue-tian Liu, Long-yu Han, Cheng-xia Wu	5:01PM-5:19PM	
ICCES1320130318257	Complex Formulation and Evaluation of Viscosity Reducer for Heavy Oil	Bo Peng, Shengke Li, Ying Li	5:19PM-5:37PM	
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems E05: Multiphysics Modeling and its Applications Title	Author	Date: May-25 Time: 8:00AM-10:00AM	Room: E
ICCES1320121210014	Numerical Analysis on Interaction between Two Zipped Wells with Continuum Damage Method	Xinpu Shen	8:00AM-8:25AM	*keynote
ICCES1320130116061	An Efficient Method for Greening the Internet with Topology Optimization	Shijia Zhu, Yujing Zeng, Fei Song, Hongke Zhang	8:25AM-8:50AM	*keynote
ICCES1320121204008	Hydraulic Fracture Propagation In Unconventional Reservoirs:The Role of Bedding Plane	Suling Wang,Yang Li,He Liu,Minzheng Jiang	8:50AM-9:08AM	
ICCES1320121208011	A New Method to Achieve Equivalent Plastic Strain Explicit Form of J2 plastic Isotropic Kinematic hardening model and Numerical Verification	Peng Cao, Decheng Feng, Changjun zhou	9:08AM-9:26AM	
ICCES1320121211015	Analysis on Building Foundation Pit Supporting Engineering Accidents	Han Zhang	9:26AM-9:44AM	
ICCES1320121211016	ABAQUS-based Analysis of Settlement Induced by Tunnel Construction	Hong Yang	9:44AM-10:02AM	

Theme Session Paper	Advances in Materials Science and Engineering E06: Modeling of Mechanical Behaviour of Materials Title	Author	Date: May-25 Time: 10:30AM-12:30PM Time	Room: E
ICCES1320130409296	FATIGUE CRACK TRANSMISSION THROUGH GRAIN BOUNDARIES IN FCC CRYSTALS: A 3D Dislocation Dynamics Analysis	C. Robertson, G.V. Prasad Reddy, C. Déprés	10:30AM-10:55AM	*keynote
ICCES1320130131133	Deformation mechanisms of single-crystalline Cu nanowires under bending and torsion	Xia Tian , Junzhi Cui and Wen Chen	10:55AM-11:13AM	
ICCES1320130329280	Molecular Dynamic Simulation Study- Polytetrafluoroethylene	Rawan Al Nsour	11:13AM-11:31AM	
ICCES1320130424317	A multiscale poromicromechanical approach to wave propagation and attenuation in bone	Claire Morin and Christian Hellmich	11:31AM-11:56AM	*keynote
ICCES1320130425325	Identification of parameters of a nonlinear material model considering the effects of viscoelasticity and damage	Jan Heczko, Radek Kottner, Tomáš Kroupa	11:56AM-12:21PM	*keynote

Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems E07: Symposium in Honour of Prof. Hehua Zhu, Advances in GeoTech Engng (MuTime)	Author	Date: May-25 Time: 1:30PM-3:30PM Time	Room: E
ICCES1320130301214	Characterization and modeling of the multiscale pore structures for porous materials	Xiaofei Guan, Xian Liu	1:30PM-1:48PM	
ICCES1320130225190	Application of the Numerical Slip Line Method in the Slope Stability Analysis	Jie Wu, Wenbo Zheng, Yongchang Cai	1:48PM-2:06PM	
ICCES1320130305229	A PGV-based empirical model for predicting liquefaction-induced lateral deformation in gently sloping ground	Fang LIU, Ming-jing JIANG, Zhen LI	2:06PM-2:24PM	
ICCES1320130225187	Mechanical Properties of Innovative Pothole Patching Materials Featuring High Toughness, Low Viscosity Nano-Molecular Resins	K.Y. Yuan, J.W. Ju, W. Yuan, J.M. Yang, W. Kao, and L. Carlson	2:24PM-2:49PM	*keynote
ICCES1320130306230	Axial and Lateral Behaviors of Open-ended Pipe Piles in Thick Soft Soil Deposits	Yong Tan, Guoming Lin, Fangle Peng, and Shaoming Liao	2:49PM-3:14PM	*keynote

Theme Session Paper	Solid Mechanics E08: Symposium in Honour of Prof. In Lee Title	Author	Date: May-25 Time: 4:00PM-6:30PM Time	Room: E
ICCES1320130101050	Analytic and Experimental Studies on Aerodynamic Characteristics of Morphing Airfoil Configurations	Seung-Hee Ko, Jae-Sung Bae, Jai-Hyuk Hwang, JinHo Roh and Kyonam Koo	4:00PM-4:18PM	
ICCES1320130103057	Shape Memory Alloys as Active Materials for Aerospace Applications	Jin-Ho Roh	4:18PM-4:36PM	
ICCES1320130107058	Development of Long-Endurance UAV Using Solar Power	Il-young Ahn, Yong-Man Yang, Soo-Yong Lee, Sang-Hyuk Park, Jae-Sung Bae, Jae-su Kwak	4:36PM-4:54PM	
ICCES1320130401283	Design of the morphing wing actuated by shape memory alloy actuator	Misun Rim, Eun-Ho Kim, Woo-Ram Kang, In Lee	4:54PM-5:12PM	
ICCES1320121231045	Separation Characteristics of Ridge-Cut Explosive Bolts with Confinement Condition	Juho Lee, Jae-Hung Han, YeungJo Lee and Hyungjin Lee	5:12PM-5:30PM	
ICCES1320130402284	Graphene-Based Carbon Nanostructures and Their Applications	ILKWON OH	5:30PM-5:48PM	
ICCES1320130408292	A metal-coated optical fiber sensor with memory effects of a metal coating and its applications	Sang-Woo Kim, In Lee, Il-Bum Kwon, Tae-Kyung Hwang	5:48PM-6:06PM	
ICCES1320130425328	Estimation of Post-earthquake Structural Integrity using Structural Seismic Records	Ji-Young Seong, Byung-Cheol Park, Seong-Hoon Jeong	6:06PM-6:24PM	

Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems E09: Multiphysics Modeling and its Applications Title	Author	Date: May-27 Time: 8:00AM-10:00AM Time	Room: E
ICCES1320121213018	The Dynamic Response Analysis of Concrete Gravity Dam under the Earthquake	Lu Yang, Shi-Min Li, Peng Cao, Xin-Pu Shen	8:00AM-8:18AM	
ICCES1320130120082	Applications of finite differences on convex structured grids to CFD problems with low Reynolds number	F. Dominguez-Mota, P. Fernandez-Valdez, E. Ruiz-Diaz, G. Tinoco-Guerrero and J.G. Tinoco-Ruiz	8:18AM-8:36AM	

ICCES1320130203134	Modeling and simulation of the nonlinear computed torque control in Simulink/MATLAB for an industrial robot	Receanu Danut	8:36AM-9:01AM	*keynote
ICCES1320130204135	Active Control of a Reduced Model of a Smart Structure	Nader Ghareeb and Ruediger Schmidt	9:01AM-9:19AM	
ICCES1320130220173	Investigation of tissue thermal damage process with application of direct sensitivity method	Marek Jasinski	9:19AM-9:37AM	
ICCES1320130313247	Simulating ferroelectric switching phenomena using 3D multiphysics Voronoi cells (MVC) based on radial basis functions and Washspres coordinates	Peter L. Bishay, Satya N. Atluri	9:37AM-9:55AM	
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems E10: Symposium in Honour of Prof. APS Selvadurai (Multiphysics Modeling) Title	Author	Date: May-27 Time: 10:30AM-12:30PM	Room: E
ICCES1320130129128	On the generalized modal analysis of time-dependent problems	Ney Augusto Dumont	10:30AM-10:55AM	*keynote
ICCES1320130130129	Coupled flow-deformation analysis of unsaturated soils including hydraulic and mechanical hystereses effects	Nasser Khalili	10:55AM-11:13AM	
ICCES1320130131132	An Arbitrary Shaped Inclusion with Imperfect Interface in Antiplane Elasticity	Les Sudak	11:13AM-11:31AM	
ICCES1320130205140	NON-SINGULAR METHOD OF FUNDAMENTAL SOLUTIONS FOR COUPLED FLUID AND SOLID MECHANICS PROBLEMS	B. Sarler, Q. Liu	11:31AM-11:49AM	
Theme Session Paper	Experimental Mechanics F01: Symposium in Honour of Prof. Daniel Post Title	Author	Date: May-24 Time: 8:00AM-10:30AM	Room: F
ICCES1320130310235	Experimental Stress Analysis: Advances by Dan Post	Daniel Post	8:00AM-9:00AM	*theme
ICCES1320130328277	Photomechanics Methods as Applied to Microelectronics Product Development	B. Han	9:00AM-9:18AM	
ICCES1320130324269	Fringe Projection Assisted Horizontal Impact Testing	Dan Schleh and Dahsin Liu	9:18AM-9:36AM	
ICCES1320130316251	4D Cameras using grating projection method with LED light sources	Yoshiharu MORIMOTO, Akihiro MASAYA, Akifumi TAKAGI and Motoharu FUJIGAKI	9:36AM-9:54AM	
ICCES1320130315250	Moire Interferometry applied to curved surfaces and residual stress measurement in rails- a tribute to Dan Post with some personal reflection	Fu-pen Chiang	9:54AM-10:19AM	*keynote
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems F03: Symposium in Honour of Prof. Hehua Zhu, Advances in GeoTech Engng (Fr Time: 1:30PM-2:30PM	Author	Date: May-24 Time: 1:30PM-2:30PM	Room: F
ICCES1320130228204	A Multi-continuum Method for Studying the Effect of Inactive Fractures on Solute Transport in 2-D Discrete Fracture Network	Zhen Wang, Jonny Rutqvist, Ying Dai	1:30PM-1:48PM	
ICCES1320130228206	Damage detection of metro tunnel structure through transmissibility function	Lei FENG, Xiongyao XIE	1:48PM-2:06PM	
ICCES1320130118065	Soil-water-air full coupling analysis on slope failure in unsaturated soil	Y. L. Xiong, B. Ye, X. H. Bao and F. Zhang	2:06PM-2:31PM	*keynote
Theme Session Paper	Experimental Mechanics F04: Symposium in Honour of Prof. Daniel Post Title	Author	Date: May-24 Time: 2:45PM-6:30PM	Room: F
ICCES1320130414301	Full-Field Recorded Displacements and their Derivatives	W. A. Samad, A. A. Khaja, D. R. Matthys and R. E. Rowlands	2:45PM-3:03PM	
ICCES1320130308234	Measurement of Facial Strains for Studying Wrinkle Formation	S. Yoneyama, S. Arikawa, M. Murakami, M. Koike and O. Tanno	3:03PM-3:21PM	
ICCES1320130412299	Using Moiré Interferometry to Measure Residual Stresses and Shrinkage	Peter Ifju	3:21PM-3:39PM	
ICCES1320130425326	Scaled Experimental Simulation of the 2002 Mw7.9 Denali Supershear Earthquake	Michael Mello, Harsha S. Bhat, Ares J. Rosakis	4:00PM-4:25PM	*keynote

ICCES1320130326275	On the Development of the Luminescent Photoelastic Coating Technique	James Paul Hubner	4:25PM-4:50PM	*keynote
ICCES1320130213155	Investigation of Microscale Damage Evolution in High-Strength Al Alloy	Helena Jin, Wei-Yang Lu, Alejandro Mota, Jay Foulk, George Johnson	4:50PM-5:08PM	
ICCES1320130120083	A Full-Field Digital Gradient Sensor for Measuring Orthogonal Stress Gradients in Transparent Sheets at Elevated Rates of Loading	Hareesh Tippur and Chandru Periasamy	5:08PM-5:26PM	
ICCES1320130314248	Thermally-Induced Deformations of Copper Pillar Flip Chip BGA Package: Measurements and Analyses	M. Y. Tsai, J. R. Zhou, P. S. Huang, C. Y. Wu, and K. M. Chen	5:26PM-5:44PM	
ICCES1320130124121	Some Recent Advances in Digital Image Correlation	Bing Pan	5:44PM-6:02PM	
Theme Session Paper	Experimental Mechanics F05: Advanced Modeling and Experiments of Complex Engineering Systems	Author	Date: May-25 Time: 8:00AM-10:00AM	Room: F
ICCES1320130325272	Evaluation of reactivity of alkali activated fly ash/slag paste	Nam-Kon Lee, Haeng-Ki Lee	8:00AM-8:25AM	*keynote
ICCES1320130124120	Mathematical model for skeletal muscle to simulate the concentric and eccentric contraction	Chetan Kuthe , Dr.R.V.Uddanwadiker	8:25AM-8:43AM	
ICCES1320130228207	Nickel Plating Bath Contamination Optimization	James O. Moody, Robert Patrick McCarthy, Naira Malaquias	8:43AM-9:01AM	
ICCES1320130424315	Finite Element Coupled Peridynamic Simulation for Dynamic Fracture	J. Lee and J.W. Hong	9:01AM-9:26AM	*keynote
ICCES1320130301213	Structural Response of Composite Panels with a Bonded Patch Repair Using Full-Field Measurement	Sameer Hamoush, Kunigal Shivakumar and Ibraheem Kateeb	9:26AM-9:44AM	
ICCES1320130304215	Study of Biomechanical Response of Human Hand-Arm to Random Vibrations of Steering Wheel of Tractor	G. Geethanjali and C. Sujatha	9:44AM-10:02AM	
Theme Session Paper	Multidisciplinary Analysis & Synthesis of Complex Systems F06: Calculations and Experiments for Petroleum Engineering (Experimental Stuc	Author	Date: May-25 Time: 10:30AM-12:30PM	Room: F
ICCES1320130119067	Experimental Study of Reasonable Drawdown Pressure of Horizontal Wells in Oil Reservoirs with Bottom Water	Chuan Lu, Huiqing Liu, Keqin Lu, Cheng Liu	10:30AM-10:48AM	
ICCES1320130119070	Experimental study on the deep profile control and oil displacement technology of nanoscale polymer microspheres	Zhao Hua, Meiqin Lin, Zhaoxia Dong, Zihao Yang, Mingyuan Li, Jie Yang, Xiuling Ji	10:48AM-11:06AM	
ICCES1320130119072	Experimental Evaluation of Water Control Agents in Low permeability Reservoir with Fractures	Fenglan Zhao, Jirui Hou, Shujun Cao	11:06AM-11:24AM	
ICCES1320130120080	New evaluation method of fracture permeability based on Stoneley wave data and electric imaging log in tight fractured sandstone reservoir	ZHANG fuming, SHAO Cairui, ZHENG Guangquan, WU Yongping, CHEN Weizhong	11:24AM-11:49AM	*keynote
ICCES1320130301210	Experimental study of chemical concentration and interfacial tension variation of ASP flooding	Gang Liu, Jirui Hou, Fenglan Zhao, Mingyuan Li, Chenyu Wu, Hongda Hao, Luming Zeng, Shaopeng Wang	11:49AM-12:07PM	
ICCES1320130318258	The Experiment Study on Different Chemical Flooding After Polymer Flooding	Yanyue Li, Yiqiang Li, Gang Xiang, Zhaoxia Dong	12:07PM-12:25PM	
Theme Session Paper	Experimental Mechanics F07: Advanced Modeling and Experiments of Complex Engineering Systems	Author	Date: May-25 Time: 1:30PM-4:20PM	Room: F
ICCES1320130425329	Internal Shape Optimization of Rotor Blade Cross-Section Based on Automatic Modeling Program	Yeon Cheol Kang, Jin Yeon Cho, Jeong Ho Kim and Jung Sun Park	1:30PM-1:48PM	
ICCES1320130416305	Laser Ultrasonic Wavefield Imaging for Baseline-free Crack Detection in Plates with Structural Complexities	Y.-K. An and H. Sohn	1:48PM-2:13PM	*keynote

ICCES1320130420308	A study on the Site Effects using Earthquakes Data in the Korean Peninsula	K.J.PARK, J.K. KIM	2:13PM-2:31PM	
ICCES1320130424320	Feasibility of a new building-integrated wind turbine system utilizing building skin	Jeongsu Park, Hyung-Jo Jung, Seung-Woo Lee, Jiyoung Park	2:31PM-2:49PM	
ICCES1320130424321	Evaluation of Seismic Fragility Curves of Base Isolated Structures	Hyung-Jo Jung, Seung-Hyun Eem	2:49PM-3:14PM	*keynote
ICCES1320130408293	Effect of Bioclogging on P-wave Responses in unconsolidated porous media	Tae-Hyuk Kwon, Jonathan B. Ajo-Franklin	3:14PM-3:32PM	
ICCES1320130424322	Optimal sensor placement for the structure ground vibration test based on master modes selection methodology	Xufei He, Zhongmin Deng, Zhitao Song	4:00PM-4:18PM	

Theme Session Paper	Solid Mechanics F09: Symposium in Honour of Prof. Wen-Hwa Chen (Multiphysics) Title	Author	Date: May-27 Time: 8:00AM-10:00AM Time	Room: F
ICCES1320121228035	Flexible Stress Estimations of OLED Devices Packaging Using Analytical Solutions and Numerical Simulations of Stacking Thin-Films	Chang-Chun Lee	8:00AM-8:18AM	
ICCES1320121229039	Modeling of Moisture Diffusion in Permeable Particle-Reinforced Epoxy Resins Using Three-Dimensional Heterogeneous Hybrid Moisture Element Method	D.S. Liu, I.H. Lin, Z.W. Zhuang, C.L. Chung	8:18AM-8:36AM	
ICCES1320121230042	Effect of discrete electordes on deformation of double clamped beam electrostaic actuator	Meng-Ju Lin	8:36AM-8:54AM	
ICCES1320121230044	Taiwan's Fuel Cell Backup Power System Demonstration Program	Chia-Mei Liu, Yi-li-Lin, Chao-Ho Lan, Fang-Hei Tsau, Sheng-Yuan Huang, Lih-Chyi Wen	8:54AM-9:12AM	
ICCES1320130425324	Numerical Analysis on Dual Holes Interactions	Chich-Kuan Chen	9:12AM-9:30AM	
ICCES1320130118064	C-reactive Protein detection by directly measuring nanobead's Brownian diffusion in evanescent wave field	Yu-Jui Fan, Zheng-Yu Chen, Yi-Hsing Liu, and Horn-Jiunn Sheen	9:30AM-9:48AM	

Theme Session Paper	ICCES Meshless Method 2013 F10: ICCESMM'13: on MLPG, Trefftz, MFS, BEM, and Other Meshless Methods Title	Author	Date: May-27 Time: 10:30AM-12:30PM Time	Room: F
ICCES1320130120086	Efficient Meshless Solutions to multi-dimensional integral and partial differential equations	Edward Kansa	10:30AM-10:48AM	
ICCES1320130131131	BUCKLING RESPONSE OF FUNCTIONALLY GRADED PLATE SUBJECTED TO VARIOUS TYPES OF THERMAL LOADS	MOKHTAR. BOUAZZA, F. HAMMADI, E.A. ADDA-BEDIA	10:48AM-11:06AM	
ICCES1320121217021	Mathematical Modeling for Emulsification Droplet Region in Iron Bath Reactor with H2-C Mixture Reduction	ZHANG Bo, ZHANG Huai-Wei, Niu Shuai, Li Wen-cai, LIANG Lisheng, WANG Dong-yan, HONG Xin	11:06AM-11:26AM	

Theme Session Paper	Advances in Materials Science and Engineering G01: Material Processing and Manufacturing Title	Author	Date: May-24 Time: 8:00AM-10:30AM Time	Room: G
ICCES1320130507346	Machining of Aerospace Materials	Mike Watts	8:00AM-8:25AM	
ICCES1320130507350	Machinability of Brittle Cellular Materials for Composite Tooling	Alex O' Connor and M. Ramulu	8:25AM-8:50AM	
ICCES1320130507351	One shot - dry - drilling of Composites/Aluminium hybrid stacked Materials in IT8 quality	Peter Mueller-Hummel and Abdelatif Atarsia	8:50AM-9:15AM	
ICCES1320130507354	Process Speeds for Drilling and Reaming CFRP and CFRP/Metallic Stacks	John Barry	9:15AM-9:40AM	
ICCES1320130507355	On-line Detection of Delamination when Drilling Composite Materials using Stereo Microphone Signal Processing	Eshetu Eneyew, M. Ramulu, S. Ramachandran Suresh and Les Atlas	9:40AM-10:05AM	
ICCES1320130507357	Diffusion Bonding and Friction Stir Welding of Dissimilar Titanium Alloys	Todd Marton, Brian Flinn and M. Ramulu	10:05AM-10:30AM	

Theme Session Paper	Advances in Materials Science and Engineering G03: Material Processing and Manufacturing Title	Author	Date: May-24 Time: 1:30PM-4:30PM Time	Room: G
ICCES1320130507358	Flextural Behavior of Diffusion Bonded Titanium Joints	Neha Kulakarni and M. Ramulu	1:30PM-1:55PM	
ICCES1320130507362	Microstructural characterization and Mechanical Properties of FSW Butt Joints	Andrew Cantrell	1:55PM-2:20PM	
ICCES1320130507363	Modeling the Effect of the Shot Peening Residual Stress on the Vickers Hardness of Aluminum alloy 7050-T7451	Heechang Bae	2:20PM-2:45PM	
ICCES1320130507364	Shakedown prediction of Fatigue Life Extension after Residual Stress Relaxation via the Recovery Strain	Julio Davies	2:45PM-3:10PM	
ICCES1320130425327	Numerical Analysis of Mold Filling Stage for Manufacturing Composite Wind Turbine Blade Using XFEM	Y. Jung and S.J. Kim	3:10PM-3:28PM	
ICCES1320130301208	Tensile Creep Study and Mechanical Properties of Carbon Fiber Nano-Composites	Yi-Luen Li, Ming-Yuan Shen, Wei-Jen Chen, Chin-Lung Chiang and Ming-Chuen Yip	4:00PM-4:18PM	
Theme Session Paper	Advances in Materials Science and Engineering G06: Metamaterials (Panel Discussion) Title	Author	Date: May-25 Time: 10:30AM-12:10PM Time	Room: G
ICCES1320130119068	Metamaterials- present state and future directions (Panel Discussion)	Rakesh Mohan Jha	10:30AM-12:00PM	*theme
Theme Session Paper	Poster S01: Poster Title	Author	Date: May-24 Time: 8:30AM-6:00PM Time	Room: S
ICCES1320130124119	Course Management System	Kristen Bhing Salvio and Reynald Jay Hidalgo	8:30AM-8:48AM	

Aeroelastic Analysis of a Horizontal Axis Wind Turbine Blade and its Structural Monitoring using Fiber Bragg Grating Sensors

In Lee¹

Abstract Wind turbine blades are normally manufactured from composite materials as they become larger and slender, and they are consistently subjected to severe vibratory load from unsteady aerodynamic wind. Thus, various accidents (including the hitting tower, internal damages, fatigue damages, and etc.) can appear under the severe operating environments. Therefore, the aeroelastic simulation and structural health monitoring (SHM) technique are highly required for preventing the structural damages and failures of wind turbine blades.

In this study, the fluid-structure interaction analysis is performed to predict the aerodynamic and structural behaviors of the wind turbine blade. The blade deflection and dynamic stability were estimated by the finite element method (FEM) - freewake coupled method. The numerical results were compared with those obtained using FEM – blade element momentum (BEM) coupled method in order to investigate the wake effects on aeroelastic responses of the blade. It was clearly observed that the blade behaviors are considerably influenced by the wake impact.

In addition, we applied the embedding types of FBG sensors to the deflection monitoring of the composite wind turbine blades. Their deflections were evaluated by classical beam theory, and compared with those obtained by a linear variable differential transformer. They showed good agreements. Therefore, the capability of FBG sensors was confirmed for monitoring the structural behavior of wind turbine blades. In addition, the epoxy packaged FBG sensors was developed and their strain transmission characteristics as well as fatigue features were investigated. It was found that thin bonding layer with high stiffness gives higher strain transmission. The ratio of the stiffness and the bonding thickness with higher strain transmission and long bond fatigue life was found.

Keywords: Aeroelasticity, FBG Sensors, Structural Health Monitoring, Wind Turbine.

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