



**9<sup>th</sup> International Conference on Acoustic Emission & 61th Acoustic Emission Working  
Group Meeting  
Chicago, IL, US June 17-20, 2019**

**ICAE-9 & AEWG-61 Program**

Updated on April 8, 2019

<b>Monday – June 17, 2019</b>		
19:00-21:00	Registration	Chicago Marriott at Medical District
19:00-21:00	Welcome Reception Soft drinks and appetizers will be served	
<b>Tuesday– June 18, 2019</b>		
8:30-17:00	Registration	Atrium
8:30-8:45	Conference Briefings/Opening Sessions	Innovation House 1.2.3
	<b>Welcome and Introductions</b> <i>David Kosnik, Chairman of AEWG</i>	
8:45-9:30	<b>Keynote – Dr. Hoda Azari</b> Nondestructive Evaluation Program and Laboratory Manager Asset Management and Construction Team Office of Infrastructure Research and Development US Department of Transportation Federal Highway Administration	
<b>Tea and Coffee Break 9:30-10:00</b>		



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<b>Technical Session 1 – Tuesday, June 18, 2019, 10:00-12:30</b>				
	Session 1-1 Knowledge Theater Session <b>Fiber Optic AE Sensors</b>	Session 1-2 Classroom Session <b>Composite Studies with AE</b>	Session 1-3 Connect Center Session <b>Monitoring in Service Systems with AE</b>	Session 1-4 Special Projects Room Session <b>Signal Processing Methods</b>
10:00-10:30	Acoustic Modes in Optical Fibers for Lamb Wave and Acoustic Emission Detection <i>Kara Peters, Junghyun Wee</i>	Detection of Contaminants in Unidirectional Carbon Fiber Lay-ups <i>Fady Barsoum, Isabel McBrayer</i>	Development of damage detection method in type-III hydrogen pressure vessel by acoustic emission <i>Takuma Matsuo, Hiroki Orito, Kotaro Hase</i>	Noise Tolerant and Wireless AE Measurement System for Process Monitoring <i>Kaita Ito, Kazuki Takahashi, Manabu Enoki</i>
10:30-11:00	Fiber-optic acoustic emission sensor systems using fiber Bragg gratings <i>Ming Han, Guigen Liu, Yupeng Zhu</i>	Investigating the Structural Response of Composite Repairs under Cyclic Loading <i>Fady Barsoum, Isabel McBrayer</i>	Power Transformers monitoring <i>Caricia Martinez, Arturo Nunez</i>	A deep learning-based two-step localization and characterization of acoustic emission sources in metallic panels using only one sensor <i>Arvin Ebrahimkhanlou, Brennan Dubuc, Melanie Schneider, Salvatore Salamone</i>
11:00-11:30	Development of Optical Fiber AE Sensor by FBG with WDM <i>Hisafumi Asaue, Tomoki Shiotani, Iori Yamamoto, Hidehiro Inaba</i>	Damage Detection Through Fretting Emission in Center-Hole CFRP Skin of Cantilever Wing Box Under Constant-Moment Fatigue Loading <i>Ryan J Neel, Jonathan Awerbuch, Tein-Min Tan, Didem Ozevin</i>	Increase uptime and plant reliability deploying asset monitoring solutions <i>Arturo Nunez</i>	Sensing and statistical analysis of acoustic emission due to crack rubbing/clapping in thin sheet metals <i>Roshan Joseph, Victor Giurgiutiu</i>
11:30-12:00	Multichannel fiber laser acoustic emission sensor system <i>Caitlin Williams, Meredith Hutchinson, Marriner Merrill, William Pogue, Peter Finkel, Geoffrey Cranch</i>	Damage Detection Through Acoustic Emission During Post-Fatigue Residual Strength Test of CFRP Skin of a Cantilevered Wingbox Under Constant-Moment Loading <i>Ryan N Neel, Jonathan Awerbuch, Tein-Min Tan, Didem Ozevin</i>	Identifying The Presence and Position of Wheelflat via Acoustic Emission <i>Okan Topcu</i>	Unattended acoustic emission tool wear monitoring by embedded software and Internet of Things <i>Shifeng Liu</i>
12:00-12:30		Effects of Cryogenic Temperatures on Wave Propagation Characteristics of Viscoelastic Composite Laminates <i>Brian Burks</i>	Radar tower inspection using omnidirectional shear acoustic emission sensors <i>Jason Philtron, Ronnie K. Miller, Steven Owens, Cody Borigo, Ward Fong</i>	An Acoustic Emission IoT Framework for Monitoring, Data Management, Diagnostics and Prognostics <i>Krzysztof Mazur, Brian Wisner, Antonios Kotsos</i>
<b>Lunch Break 12:30-13:30</b>				



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<b>Technical Session 2 – Tuesday, June 18, 2019, 13:30-16:00</b>				
	Session 2-1 Knowledge Theater <u>Session</u> <b>Sensor Calibration Methods</b>	Session 2-2 Classroom <u>Session</u> <b>AE in Materials Science</b>	Session 2-3 Connect Center <u>Session</u> <b>Additive Manufacturing Studies</b>	Session 2-4 Special Projects Room <u>Session</u> <b>Monitoring Concrete Structures with AE</b>
13:30-14:00	Progress in Sensitivity Verification of AE Sensors <i>Kanji Ono</i>	Acoustic Emission Information Discovery at the University of Illinois <i>Mary C Schlembach, William H Mischo</i>	Tensile Test of 3D Printed Specimens for Demonstrating the Performance of Acoustic Emission Measurement Systems <i>Hironobu Yuki, Tomona Murata</i>	Evaluation of Damage Depth Inside Concrete Using Surface Wave Tomography <i>Norihiko Ogura, Yuji Konishi, Tomoki Shiotani</i>
14:00-14:30	Experimental Characterization of PKBBI Sensor: the Low Power Flat Frequency Response, Broadband Acoustic Emission Sensor <i>Hossein Saboonchi, Gonzalez Nunez Miguel</i>	Study of dislocation dynamics of copper single crystals under cycling loading through acoustic emission and microstructural characterizations <i>Gabriel L'Hote, Stephanie Deschanel, Sophie Cazottes, Maurine Montagnant</i>	Monitoring Fracture Formation in Additively Manufactured Anisotropic Rocks <i>Liyang Jiang, Hongkyu Yoon, Antonio Bobet, Laura J. Pyrak-Nolte</i>	Self-Healing Degradation of Asphalt Concrete Materials due to Cooling Cycles <i>Behzad Behnia, Henrique Reis</i>
14:30-15:00	Transmitters for the face-to-face sensor sensitivity verification - is their scatter tolerable? <i>Hartmut Vallen</i>	Acoustic Emission in Process of Thermal Decomposition of Potassium Hydrogen Carbonate Crystals <i>Shavkat Azimov, Vladislav Petukhov, Lakaev Abdukholik</i>	Acoustic Emission Monitoring for Additively Manufactured Materials <i>Brian Wisner, Emine Tekerek, Mir Shehu, Antonios Kotsos</i>	Evaluation of Injected depth in crack of Concrete using Surface Wave <i>Nobuhiro Okude, Tomoki Shiotani</i>
15:00-15:30	Far-field wave propagation signals from pencil lead breaks on the open end of a thick-walled layered cylinder: Part 1 Amplitudes and frequency content <i>Marvin Hamstad</i>	The material condition evaluation of pressure vessels after long-term operation in the oil refining processing using acoustic emission method and structure stress field analysis <i>Igor Lyasota, Marek Nowak, Lukasz Sarniak, Pitr Kustra</i>	3D-printed anisotropic structure for switching elastic wave propagation <i>Yoshihiro Mizutani, Ryuichiro Otonari, Takeshi Ashizawa, Akira Todoroki</i>	The application of acoustic emission parameters on cement-based materials at different hardening stages <i>Evin Dildar A Dzaye, Geert De Schutter, Dimitrios G. Aggelis</i>
15:30-16:00	Far-field wave propagation signals from pencil lead breaks on the open end of a thick-walled layered cylinder: Part 2 Modes of wave propagation <i>Marvin Hamstad</i>	Monitoring geochemically-induced fractures in synthetic rocks <i>Chven A. Mitchell, Laura J. Pyrak-Nolte</i>		Acoustic Emission based Crack Tracking for Concrete Structures <i>Fengqiao Zhang, Yuguang Yang</i>
<b>Tea and Coffee Break 16:00-16:30</b>				

<b>Tuesday– June 18, 2019</b>		
16:30-17:30	AEWG Meeting	Innovation House 1.2.3
17:30-20:00	Women Networking Event	Greek Island Restaurant
<b>End of 1<sup>st</sup> Day Sessions</b>		



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<b>Wednesday– June 19, 2019</b>		
8:30-17:00	Registration	Atrium
8:30-8:45	Announcements	Innovation House 1.2.3
8:45-9:30	<b>Keynote – Professor Joseph Rose</b> Paul Morrow Professorship in Engineering Design and Manufacturing Penn State	
<i>Tea and Coffee Break 9:30-10:00</i>		
10:00-12:00	<b>Special Session on International Institute of Innovative Acoustic Emission (IIAE)</b>	Innovation House 1.2.3
10:00-10:30	Workforce, Dissemination and Outreach Efforts at JSNDI	
10:30-11:00	Workforce, Dissemination and Outreach Efforts at EWGAE	
11:00-11:30	Workforce, Dissemination and Outreach Efforts at JAE	
11:30-12:00	AE as a Vehicle for High School STEM Outreach & Panel	
<i>Lunch Break 12:00-13:00</i>		



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<b>Technical Session 3 – Wednesday, June 19, 2019, 13:00-15:30</b>				
	Session 3-1 Knowledge Theater Session <b>AE Theories and Modeling</b>	Session 3-2 Classroom Session <b>Quantitative Studies of AE on Composite Materials</b>	Session 3-3 Connect Center Session <b>Testing Metallic Materials with AE</b>	Session 3-4 Special Projects Room Session <b>Civil Infrastructure Applications</b>
13:00-13:30	Modeling the Acoustic Emissions Produced by the Dynamic Fracture of a Glass Beam <i>Valentin van Gemmeren, Jurg Dual</i>	Characterization of fiber break by quantitative acoustic emission in a model composite carbon/epoxy <i>Zeina Hamam, Nathalie Godin, Claudio Fusco, Thomas Monnier</i>	Monitoring of fatigue cracking and damage of metallic materials through Acoustic Emission and Digital Image Correlation <i>Stephanie Deschanel, Julien Rethore, Jerome Weiss</i>	Acoustic Emission Measurements of Detensioning and Transport of Prestressed Reinforced Concrete Bridge Girders <i>Dryver Huston, Robert Worley II, Mandar Dewoolkar, Tian Xia, Daniel Orfeo</i>
13:30-14:00	On the Use of Acoustic Emission in Vibrations Testing or Progressive Failure Monitoring and Modeling <i>Brian Wisner, Mira Shehu, Johnathon Kordell, Abhijit Dasgupta, Harsh Baid, Antonios Kontsos</i>	Simulation and experimental investigation of acoustic emission in adhesively-bonded joints subjected to different fracture-modes <i>Alasdair Crawford, Mohamad Ghazi Droubi, Nadimul Haque Faisal</i>	Using machine learning to predict welding quality from airborne AE sensor data <i>Kaiser Asif, Lu Zhang, Sybil Derrible, Ernesto Indacochea, Didem Ozevin, Brian Ziebart</i>	Application of Non-Contact Laser Impact with AE Analysis and Tomography Technique for Damage Identification in Concrete <i>Tomoki Shiotani, Katsufumi Hashimoto, Masaharu Nishikino, Katsuhiro Mikami</i>
14:00-14:30	The Qualification / Certification Dilemma - An Innovated Approach for the Development of Advanced Nondestructive Testing Technicians. <i>Donald Blanchette</i>	Damage identification in composite tubes through acoustic emission monitoring <i>Neha Chandarana, Emmanuel Ramasso, Constantinos Soutis, Matthieu Gresil</i>	AE measurement during friction stir welding of flame-resistant magnesium alloy with simulated inclusions <i>Kazuki Takahashi, Takayuki Shiraiwa, Manabu Enoki, Kaita Ito, Eitaro Yukutake</i>	Damage Quantification of RC decks by Means of Rain-Induced AE Excitations and Source Location Bias <i>Katsufumi Hashimoto, Tomoki Shiotani, Kazuo Watabe, Hidefumi Takamine</i>
14:30-15:00	Omnidirectional shear acoustic emission sensor for improved location analysis <i>Jason Philtrou, Cody Borigo, Steven Owens, Ronnie K. Miller, Joseph L. Rose</i>	Burst pressure prediction of composite vessels <i>Markus Sause, Stefan Schmitt, Birte Hoeck, Andreas Monden</i>	Structural Health Monitoring of Mooring Chains Crack Initiation and Growth using Acoustic Emission <i>Angela Angulo, Slim Souza, Tat-Hean Gan</i>	Development of Structural Health Monitoring Technology for Internal Tendon of PSC Bridge Using Acoustic Emission Technology <i>Dong-Hyun Kim, Yoon-Gi Hong, Dong-Woo Seo, Ki-Tae Park</i>
15:00-15:30	AE and X-Ray study of Microstructure Damage to Cr–Mo–V Rotor Steel as a Consequence of Extremely Long Operation <i>Albert Leksovskii, Boris Baskin, Shavkat Azimov</i>	Real-time acoustic emission monitoring of a 100" long, 56" ID filament wound/hand layup, 5" thick carbon fiber pressure vessel for human occupancy <i>Tony Nissen</i>	Acoustic emission study of active deformation mechanisms in hcp metals <i>Patrik Dobron, Michal Knappek</i>	Infrastructure monitoring: solutions and examples <i>Horst Trattig, Michael Hauserer</i>
<b>Tea and Coffee Break 15:30-16:00</b>				



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<b>Wednesday– June 19, 2019</b>		
16:00-17:00	Commercial Presentations	Innovation House 1.2.3
17:00-18:00	Free time	
18:00-21:00	Banquet - Cruise at Lake Michigan	Navy Pier
<b><i>End of 2nd Day Sessions</i></b>		



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<b>Thursday– June 20, 2019</b>		
8:30-8:45	Announcements	Innovation House 1.2.3
8:45-9:30	<b>Keynote – Mauricio Calva</b> Nondestructive Examination Expert Chevron Energy Technology Company	
<b>Tea and Coffee Break 9:30-10:00</b>		

<b>Technical Session 4 – Thursday 20, 2019, 10:00-12:00</b>				
	Session 4-1 Knowledge Theater Session <b>Advances in AE Sensors and Signal Processing</b>	Session 4-2 Classroom Session <b>Composite Structures with AE</b>	Session 4-2 Connect Center Session <b>Advanced Applications of AE</b>	Session 4-4 Special Projects Room Session <b>Civil Infrastructure</b>
10:00-10:30	A new time-domain feature (RKM) for Acoustic Emission transient signal processing <i>Ronnie Miller, Jason Philtron</i>	Acoustic Emission Characterization of a Composite Overwrapped Pressure Vessel as a Structural Health Monitoring Method <i>Behnoush Golchinfar, Miguel Gonzalez Nunez, Patsi Francis</i>	Advances in the in-situ acoustic emission and digital image correlation monitoring of mechanically loaded materials. <i>Michal Knapek, Kristian Mathis, Patrik Dobron</i>	Development of PSC Bridge Tendon Damage Diagnosis System using Acoustic Emission Technique <i>Dong-Woo Seo, Ga-Young Kim, Ki-Tae Park, Dong-Hyun Kim, Yoon-Gi Hong</i>
10:30-11:00	Applying Location Accuracy Refinement to Simulated Location Testing Results <i>David Kosnik, Richard Nordstrom</i>	Acoustic emission during tensile tests of raw bamboo <i>Alba Fernandez, Francisco Rescalvo, Ana Cruz, Antolino Gallego</i>	A comparison study of Vibro-Acoustic Modulation technique and Conventional AE <i>Behnoush Golchinfar, Majid Ramezani Goldyani, Hossain Saboonchi, Dimitri Donskoy</i>	Internal damage detection of RC bridge decks with uniformly distributed elastic wave sources <i>Hidefumi Takamine, Yuki Ueda, Kazuo Watabe, Katsufumi Hashimoto, Tomoki Shiotani</i>
11:00-11:30	Multi-frequency MEMS Acoustic Emission Sensor <i>Hanie Kazari, Didem Ozevin</i>	Overview of Acoustic Emission in Monitoring Powder Technology <i>Eric Serris, Ana Cameirao, Frederic Gruy, Jean-Michel Herri, Gerard Thomas</i>	Use of Acoustic Emission for identifying Gas-Liquid mixing regime in agitated vessel applying machine learning <i>Giuseppe Forte, Federico Alberini, Mark Simmon, Hugh Stitt</i>	Crack location in orthotropic steel bridge decks using acoustic emission technique <i>Dan Li, Wee Hoe Ng, Wei Xin Ren</i>
11:30-12:00	Off-the-Shelf Tools for Generalized, Automated Large-Scale Location Accuracy Refinement <i>Horst Trattng, David Kosnik, Richard Nordstrom</i>	AE Measurements and Analysis on a Layered Pressure Vessel <i>Adrian Pollock, Miguel Gonzalez, Hossain Saboonchi</i>	Characterization of Microdamage of Flexible Solar Cell under Fatigue Load using AE and LT Techniques <i>Takahiro Matsueda, Shuichi Wakayama, Kosuke Nakahara, Akihiro Takano</i>	Acoustic Emission source localization based crack tracking for existing concrete structural members <i>Fengqiao Zhang, Yuguang Yang</i>
12:00-12:30	Phased Acoustic Emission Sensor Array for Determining Radial and Axial Position of Defects in Pipe-like Structures <i>Lu Zhang, Chen Enpei, Gorkem Okudan, Didem Ozevin</i>			Development of prestressed concrete bridge tendon damage diagnosis system using acoustic emission technique <i>Dong-Woo Seo, Ga-Young Kim, Ki-Tae Park, Dong-Hyun Kim, Yoon-Gi Hong</i>
<b>End of Technical Sessions</b>				



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<b>Thursday– June 20, 2019</b>	
12:30-17:00	Social Event - Trip to Science and Industry Museum
<b><i>End of Conference</i></b>	