

# Draft Program\*



## **AEWG-60**

### **60<sup>th</sup> Meeting of the**

# **Acoustic Emission Working Group**

June 19 & 20, 2018  
The Mills House Hotel  
Charleston, South Carolina, USA

**Host & Program Chair**  
**Dr. Paul Ziehl**



UNIVERSITY OF  
**SOUTH CAROLINA**  
College of Engineering  
and Computing

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## AEWG-60 Program at a Glance\*

Monday, June 18		
17:00 – 19:00	Registration & Build-up for Sponsors and Exhibitors	Queen Street Gallery
17:00 – 19:00	Welcome Reception Hors d'oevres and cash bar	Meeting Street Terrace

Tuesday, June 19		
7:00 – 8:00	Breakfast & Registration	Queen Street Gallery
8:00 – 8:10	Welcome & Opening	Rutledge/Heyward Room
8:10 – 8:40	Keynote	
8:40 – 10:00	Technical Session I	
10:00 – 10:30	Morning Break <i>(Awards Committee Meeting)</i>	Queen Street Gallery
10:30 – 12:10	Technical Session II	Rutledge/Heyward Room
12:10 – 13:10	Lunch <i>(Executive Committee Meeting)</i>	Barbadoes Room
13:10 – 14:20	Commercial Presentations	Rutledge/Heyward Room
14:20 – 15:40	Technical Session III	Rutledge/Heyward Room
15:40 – 16:10	Afternoon Break <i>(IIIAE Board Meeting)</i>	Queen Street Gallery
16:10 – 17:10	Technical Session IV	Rutledge/Heyward Room
17:10	Adjourn for the day	
	Dinner on your own	

Wednesday, June 20		
7:00 – 8:00	Breakfast & Registration	Queen Street Gallery
8:00 – 8:35	Opening & Keynote	Rutledge/Heyward Room
8:35 – 10:15	Technical Session V	
10:15 – 10:45	Morning Break	Queen Street Gallery
10:45 – 12:05	Technical Session VI	Rutledge/Heyward Room
12:05 – 13:05	Lunch	Barbadoes Room
13:05 – 14:05	Business Meeting	Rutledge/Heyward Room
14:05 – 15:45	Technical Session VII	Rutledge/Heyward Room
15:45 – 16:15	Afternoon Break	Queen Street Gallery
16:15 – 17:55	Technical Session VIII	Rutledge/Heyward Room
17:55 – 18:00	Closing Technical Session	Rutledge/Heyward Room
18:00	Adjourn	
18:00 – 19:00	Reception	Beuregard Lounge
19:00 – 21:00	AEWG banquet and Awards Presentation	Planters Suite

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# AEWG-60 Technical Program

Tuesday, June 19 – Morning Program\*

*Rutledge/Heyward Room*

7:00 – 8:00	<b>Breakfast &amp; Registration</b> <i>Queen Street Gallery</i>
8:00 – 8:05	<b>Welcome</b> Paul Ziehl
8:05 – 8:10	<b>Opening</b> David Kosnik
8:10 – 8:40	<b>Keynote</b> Lee Floyd, recent SCDOT retiree, now with WSP
8:40 – 10:00	<b>Tech Session I: Infrastructure</b> Chair: Tomoki Shiotani
	<b>Repair effect of ASR Deteriorated RC Bridge Decks with Acoustic Approaches</b> Tomoki Shiotani, Nobuhiro Okude, Takahiro Nishida, Yasushi Tanaka, Shogo Furuno
	<b>Acoustic Emission Monitoring of Detensioning and Transport of Prefabricated and Prestressed Reinforced Concrete Bridge Girders</b> Dryver Huston, Robert Farrell, Dan Orfeo, Robert L. Worley II, Dylan Burns, Tian Xia, Mandar Dewoolkar
	<b>Signal Processing Based Filters for Acoustic Emission Data in Prestressed Concrete</b> Marwa Abdelrahman, Mohamed ElBatanouny, John Rose, Paul Ziehl
	<b>Damage Evaluation of Alkali-Silica Reaction of Confined Concrete Structures Using Acoustic Emission</b> Rafal Anay, Vafa Soltangharai, Lateef Assi, Nolan Hayes, Paul Ziehl, Zhongguo John Ma, Sihem Le Pape
10:00 – 10:30	<b>Morning Break - (Awards Committee Meeting)</b> <i>Queen Street Gallery</i>

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<b>Tuesday, June 19 – Morning Program* (Continued)</b>	
<i>Rutledge/Heyward Room</i>	
10:00 – 12:10	<b>Tech Session II: Infrastructure (continued)</b> Chair: Arvin Ebrahimkhanlou
	<b>Fatigue damage characterization of RC slabs considering water infiltration by means of 3D AE tomography</b> Hisafumi Asaue, Tomoki Shiotani, Shintaro Fukumoto, Yasushi Tanaka, Ichiro Iwaki
	<b>Enhanced synchrosqueezed wavelet transform based acoustic emission feature quantification and signal classification for rail crack monitoring</b> Dan Li, Kevin Sze Chiang Kuang, Chan Ghee Koh, and Dong Yang
	<b>Improvement of computation algorithms of AE tomography through damage evaluation for a RC girder joint</b> Riku Murakami, Tomoki Shiotani, Hisafumi Asaue, Katsufumi Hashimoto, Kimble West
	<b>Acoustic Emission Monitoring of a Nuclear Containment Wall during Post-tensioning: Data Mining and Knowledge Discovery</b> Arvin Ebrahimkhanlou, Jongkwon Choi, Dr. Trevor D. Hrynyk, Dr. Salvatore Salamone, Dr. Oguzhan Bayrak
	<b>Blockage Detection in Pipes by Continuous Emission of Acoustic Signal</b> Mohammed Al-Tofan, Mohamed Elkholy, Sahad Khilqa, Lateef Assi, Rafal Anay, Paul Ziehl, M. Hanif Chaudhry
12:10 – 13:10	<b>Lunch - (Executive Committee Meeting)</b> <i>Barbadoes Room</i>

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## Tuesday, June 19 Afternoon Program\*

*Rutledge/Heyward Room*

<b>13:10 – 14:10</b>	<b>Commercial Presentations</b> Chair: Paul Ziehl
<b>14:10 – 14:20</b>	USC's McNAIR Center for Aerospace Research & Innovation Abdel Bayoumi
<b>14:20 – 15:40</b>	<b>Tech Session III: Aerospace &amp; Composites</b> Chair: Yoshihiro Mizutani
	<b>AE propagation in CFRP with curved fibers</b> Yoshihiro Mizutani, Takeshi Ashizawa, Akira Todoroki, Yoshiro Suzuki
	<b>Damage identification in composites through acoustic emission monitoring</b> Neha Chandarana, Constantinos Soutis, Matthieu Gresil
	<b>Early-stage Damage Detection using Carbon Nanotube-Embedded Advanced Aerospace Composites</b> Natasha Bradley, Michael Coatney, Asha Hall, Latha Nataraj
	<b>A Review of the Applications of Acoustic Emission Testing in Composite Repair</b> Fady F. Barsoum and Isabel M. McBrayer
<b>15:40 – 16:10</b>	<b>Afternoon Break - (IIIAE Board meeting)</b> <i>Queen Street Gallery</i>

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## Tuesday, June 19 Afternoon Program\* (Continued)

*Rutledge/Heyward Room*

<b>16:10 – 17:10</b>	<b>Tech Session IV: Aerospace &amp; Composites</b> Chair: Natasha Bradley
	<b>Towards Achieving an Autonomous Acoustic Emission Based Structural Health Monitoring Solution for Aircraft</b> John McCrory, Stephen Grigg, Scott Townsend, Renato Picelli, Alicia Kim, Carol Featherston, Karen Holford, Rhys Pullin
	<b>Acoustic Emission Correlation with Damage Mechanics in a Composite Material</b> Michael Coatney, Mulugeta Haile, Asha Hall, Jin Hyeong Yoo, Natasha Bradley
	<b>Zonal source location of AE events on an airplane elevator using neural network supervised method</b> Vafa Soltangharaei, Rafal Anay, Deepak Begrajka, Michael Van Tooren, Victor Giurgiutiu, Paul Ziehl
<b>17:10 – 17:15</b>	Wrap-Up
<b>17:15</b>	Adjourn for the Day
	Dinner on your own

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## Wednesday, June 20 – Morning Program\*

*Rutledge/Heyward Room*

<b>7:00 – 8:00</b>	<b>Breakfast &amp; Registration</b>
<b>8:00 – 8:05</b>	Opening & Announcements Paul Ziehl
<b>8:05 – 8:35</b>	Keynote: <b>Historical Perspectives of Guided-Wave AE and New Developments</b> Kanji Ono
<b>8:35 – 10:15</b>	<b>Tech Session V: Sensors/Sensing/Signal Analysis/Modelling</b> Chair: Hartmut Vallen
	<b>Comparison of Wavenumber Estimate Techniques for Acoustic Wavenumber Spectroscopy</b> Frederick Purcell, Rhys Pullin, Davide Crivelli, Ryan Marks
	<b>Obtaining the sensitivities of an AE sensor based on motions verified by a scanning laser vibrometer</b> Hartmut Vallen
	<b>Piezoelectric Micromachined Acoustic Emission Sensors</b> Minoo Kabir, Hanie Kazari and Didem Ozevin
	<b>A Deep Learning Approach to Localization of Acoustic Emission Sources in Plate-like Structures with One Sensor</b> Arvin Ebrahimkhanlou, Dr. Salvatore Salamone
	<b>Experiments for Analysis of AE Location Arrays</b> Richard Nordstrom, David Kosnik, Horst Trattng
<b>10:15 – 10:45</b>	<b>Morning Break</b> <i>Queen Street Gallery</i>

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## Wednesday, June 20 - Morning Program\* (Continued)

*Rutledge/Heyward Room*

<b>10:45 – 12:05</b>	<b>Tech Session VI: Sensors/Sensing/Signal Analysis/Modelling (Continued)</b> Chair: Rhys Pullin
	<b>A study of sludge volume inside crude oil storage tanks using AE technique and thermography</b> Ireneusz Baran, Tomasz Dunaj, Marek Nowak
	<b>Additive Wave Analysis: A Hit Based Approach to Wavestreaming with Acoustic Emission</b> John McCrory, Matthew Pearson, Karen Holford, Rhys Pullin
	<b>Finite element modeling of elastic wave generated by crack growth</b> Li Ai, Rafal Anay, Vafa Soltangharaei, Lateef Assi, Paul Ziehl
	<b>Intergranular Stress Corrosion Crack Detection in 304L Stainless Steel Using Acoustic Emission</b> Joseph Hill, Li Ai, Vafa Soltangharaei, Paul Ziehl
<b>12:05 – 13:05</b>	<b>Lunch</b> Barbadoes Room

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## Wednesday, June 20 Afternoon Program\*

*Rutledge/Heyward Room*

<b>13:05 – 14:05</b>	<b>Business Meeting</b> Chair: David Kosnik
<b>14:05 – 15:45</b>	<b>Tech Session VII: Fatigue/Fracture</b> Chair: Antonios Kotsos
	<b>Detection and Location of Cracking in Additive Layer Manufacturing Processes using Acoustic Emission</b> Rhys Pullin, Davide Crivelli, John McCrory, Stephen Ball, Damon Northeast, Jonathan Mansell
	<b>Using Artificial Neural Networks in a methodical approach to develop suitable classification systems of Acoustic Emission data generated in tribological contacts</b> Knut Wantzen, Arn Jöger, Tobias Stürmlinger, Albert Albers
	<b>Methodology to Extract Damage-related Signals Embedded into Streamed Acoustic Emission Signals</b> Lu Zhang, Didem Ozevin, David He, William Hardman, Alan Timmons
	<b>Data-driven Fatigue Prognostics Based on Acoustic Emission Monitoring</b> Brian J. Wisner, Konstantinos Baxevanakis, Sara Schlenker, Harsh Baid, Antonios Kotsos
	<b>Vibration Induced Acoustic Emission Waveforms in a Fatigue Crack</b> Md Yeasin Bhuiyan, Victor Giurgiutiu
<b>15:45 – 16:15</b>	<b>Afternoon Break</b> <i>Queen Street Gallery</i>

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## Wednesday, June 20 Afternoon Program\* (Continued)

*Rutledge/Heyward Room*

<b>16:15 – 17:55</b>	<b>Tech Session VIII: Fatigue/Fracture (Continued)</b> Chair: Didem Ozevin
	<b>Detection of Screw Thread Stripping in Medical Applications using Acoustic Emission</b> Rhys Pullin, John McCroy, Davide Crivelli
	<b>Investigation of Particle Fracture in Aluminum Alloys by Coupling In Situ X-Ray <math>\mu</math>-CT with Acoustic Emission Monitoring</b> Brian J. Wisner, Philipp Postada, Markus Sause, and Antonios Kontsos
	<b>Fatigue Damage Identification via Post-processing of Microstructure-related Acoustic Emission Data</b> Krzysztof Mazur, Brian J. Wisner, Antonios Kontsos
	<b>Noise Blocking by Metamaterials to Enhance the Crack Detection of AE Method</b> Minoo Kabir, Amir Mostavi, Didem Ozevin
	<b>Deep Learning Based Rolling Bearing Fault Detection with Acoustic and Vibratory signals</b> Guangxing Niu, Edward Mayfield, Bin Zhang, University of South Carolina
<b>17:55 – 18:00</b>	Closing Remarks
<b>18:00</b>	Adjourn
<b>18:00 – 19:00</b>	<b>Reception</b> <i>Meeting St. Terrace</i>
<b>19:00 – 21:00</b>	<b>Awards Banquet</b> <i>Planters Suite</i>

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