



35th European and 10th International Conference on AE Testing

13th -16th September 2022 - Ljubljana, Slovenia

Conference website: <https://ewgae2022.si/>

Conference e-mail: ewgae2022@fs.uni-lj.si

Organizer: University of Ljubljana, Faculty of Mechanical Engineering

Co-organizers: European Working Group on Acoustic Emission (EWGAE) & International Institute of Innovative Acoustic Emission (IIIAE)

Supported by: Slovenian Society for Non-destructive testing (SSNDT)

Conference venue: uHotel and Grand Hotel Union
Miklošičeva cesta 3, 1000 Ljubljana, Slovenia

Welcome Reception & Registration September 13th
14:00 – 18:00
uHotel - Ground floor, Miklošičeva cesta 3, 1000 Ljubljana

Oral presentations: The Orchid hall and The Iris hall

Sponsors and exhibitors: The Rose room

Meetings: General Assembly of EWGAE
Thursday, September 15th, 16:30

III-AE Steering Committee Meeting
Thursday, September 15th 2022, 18:00

Guided tour of Plečnik's Ljubljana September 13th, 2022
17:30, Start in front of Grand Hotel Union

Cruise and dinner with wine tasting September 14th, 2022
17:15, Start in front of Grand Hotel Union

Gala dinner with award ceremony: September 15th, Glass hall – Grand Hotel Union,
gathering starts at 19:45, award ceremony at 20:00



EWGAE

European Working Group on Acoustic Emission



IIIAE

International Institute of Innovative Acoustic Emission

University of Ljubljana
Faculty of *Mechanical Engineering*



Wednesday, September 14th, 2022

	<i>The Orchid hall</i>	<i>The Iris hall</i>
9:00 – 9:30	Conference opening	
9:30 – 10:40	Keynotes Chair: Roman Šturm	
	<p><i>A GLIMPSE AT FIFTY-ONE YEARS IN ACOUSTIC EMISSION</i> Marvin A. Hamstad University of Denver, Denver, CO, USA</p> <p><i>ACOUSTIC EMISSION TESTING FOR MULTI-SCALE ASSESSMENT OF REINFORCEMENT CORROSION IN CONCRETE STRUCTURES</i> Els Verstrynge KU Leuven, Department of Civil Engineering, Leuven, Belgium</p>	
10:40-11:00	Break	
11:00-12:00	Companies in Action Chair: Roman Šturm	
	<p><i>Vallen systeme</i> <i>Mistras, Physical acoustics</i> <i>Optics11, fiber optic sensing solutions</i> <i>AE Qingcheng</i></p>	
12:00 – 13:20	Corrosion Chairs: Charlotte Van Steen, Tomoki Shiotani	
	<p><i>Acoustic Emission Monitoring of abrasion and corrosion in double-walled pipelines</i> Kilian Tschöke, Alexander Pietzsch, Thomas Kippert, Lars Schubert (KRONOS TITAN GmbH),</p> <p><i>Investigation of delta-T mapping source location technique based on the arrival of A0 modes</i> Han Yang, Bin Wang, Dandan Liu, Stephen Grigg (TWI Ltd, Cambridge, Brunel University London)</p> <p><i>Acoustic emission analysis of the corrosion progress on coated aluminium alloy AA2024-t3 during exco tests</i> Chihab Abarkane, Maria Lekka, Eva García-Lecina, Jesús M. Vega (CIDETEC, Basque Research and Technology Alliance (BRTA)), Ane M. Florez-Tapia (VICOMTECH, Basque Research and Technology Alliance (BRTA)), Yanis M. Benane (MISTRAS Group SA)</p> <p><i>Artificial Intelligence-based corrosion sensing and prediction for aircraft applications (AICorrSens)</i> Christoph Kralovec (Institute of Structural Lightweight Design, JOHANNES KEPLER UNIVERSITY LINZ)</p>	

13:20 – 14:50	Lunch break	
14:50 – 16:30	Material Characterisation Chairs: Stéphanie Deschanel, Markus Sause	Monitoring of metallic structures Chair: Tomoki Shiotani
	<p><i>On trailing waves rather than lamb waves being generated by buried in-plane dipoles in thick plates</i> Marvin Hamstad (<i>University of Denver</i>), Markus Sause (<i>University of Augsburg</i>)</p> <p><i>Identification of damages into a polymer structure by AE. Transition from tensile specimen to structure</i> Eric Lainé, Jean-Claude Grandidier, Anne-Laure Gorge, Maxime Cruz (<i>Institut Pprime, CNRS, ISAE-ENSMA,</i>) Eric Maziers (<i>TotalEnergies One Tech Belgium</i>)</p> <p><i>A new approach to ultrasonic characterization of fluid embedded in two viscoelastic layers using the transfer matrix method</i> Tafkirte Mounir, HAMINE Adil, MESBAH Hicham (<i>Laboratory of Metrology and Information Processing (LMIP), Faculty of Science, Ibn Zohr University</i>)</p> <p><i>Study of dislocation dynamics of copper single crystals under cycling loading through acoustic emission and microstructural characterizations</i> Gabriel L'hôte, S.Cazottes, M.Montagnat, S.Deschanel (<i>Univ Lyon, INSA-Lyon, Univ. Grenoble Alpes</i>)</p> <p><i>Acoustic Emission Generated by Alternating Magnetic Field</i> Gabor Por, Szebasztián Szabó, Tibor Morvai, Laszló Koroknai, Ottó Szabados (<i>University of Dunaújváros</i>)</p>	<p><i>Industrial application of acoustic emission monitoring – general concept and selected practical example</i> Heribert Marihart, Mikhail Prokofyev, Gerald Lackner (<i>TÜV Austria SERVICES GMBH</i>)</p> <p><i>Acoustic emission applied to mode I fatigue damage monitoring of adhesively bonded joints</i> Rosemere de Araujo, Alves Lima, Andrea Bernasconi, Michele Carboni (<i>Politecnico di Milano</i>)</p> <p><i>PIPE DENT EVALUATION BY ACOUSTIC EMISSION DURING HYDRAULIC PRESSURE TESTS</i> Václav SVOBODA, František ŽEMLIČKA (<i>Preditest Ltd</i>)</p> <p><i>Effective Approaches to Remote Asset Monitoring with Acoustic Emission</i> Arturo Nunez (<i>Mistras Group, Inc., USA</i>), Spilios Kattis (<i>Mistras Group Hellas, Greece</i>)</p> <p><i>SIDCOF - Inspection and surveillance of penstocks</i> Johann Catty, Olivier Duverger, Abdelkrim Saidoun, Fan Zhang (<i>CETIM</i>)</p>

Thursday, September 15th, 2022

	<i>The Orchid hall</i>	<i>The Iris hall</i>
9:00 – 10:10	Keynotes Chair: Marvin Hamstad <i>ACOUSTIC EMISSION OF COMPOSITES - ABOUT THE WHEN, WHERE AND WHAT AND THE RESIDUAL CAPACITY</i> Markus Sause University of Augsburg, Germany <i>CONTRIBUTION OF ELASTIC WAVE APPROACHES TO CIVIL ENGINEERING DIGITAL TRANSFORMATION</i> Tomoki Shiotani Kyoto University, Japan	
10:10 – 10:25	Break	
10:25 – 11:45	Students in action Chairs: Ireneusz Baran, Horst Trattnig <i>Monitoring of fresh concrete with Super Absorbent Polymers (SAPs) using Acoustic Emission (AE)</i> Eleni Korda, Eleni Tsangouri, Dimitrios G. Aggelis (Vrije Universiteit Brussel), Didier Snoeck (Université Libre de Bruxelles), Geert De Schutter (Gent University) <i>Identification of internal damages in reinforced concrete slabs using probability density field of acoustic emission events</i> Fengqiao Zhang, Yuguang Yang (Delft University of Technology), Max A.N. Hendriks (Norwegian University of Science) <i>Development of novel acoustic emission source location method utilizing wavelet transform and Akaike information criterion</i> Yoshito Suzuki, Takuma Matsuo (Meiji University) <i>ACOUSTIC EMISSION-BASED STRUCTURAL HEALTH MONITORING CONCEPT FOR CORROSION OF ALUMINUM AIRCRAFT STRUCTURES</i> Thomas Erlinger, Christoph Kralovec and Martin Schagerl (Institute of Structural Lightweight Design, Johannes Kepler University)	Civil engineering Chair: Antolino Gallego <i>Acoustic emission activation protocols for alkali-silica reaction damage assessment in concrete</i> Charlotte Van Steen, Els Verstrynge (Department of Civil Engineering, KU Leuven) <i>Acoustic emission monitoring of the textile reinforced CEMENT (TRC)-to-masonry shear bond</i> Nadège Reboul (Université Claude Bernard Lyon), Mohamed Saidi (Université Savoie Mont Blanc), Aron Gabor (Université Claude Bernard Lyon) <i>Filtering approaches of AE data in damage severity assessment of highly emissive concrete structures under loading</i> Giuseppe Scionti, Luigi Calabrese and Edoardo Proverbio (University of Messina, Dept. of Engineering, Messina.,Italy) <i>AE localization issues in heavy reinforced post-tensioned concrete beams</i> Giuseppe Scionti, Luigi Calabrese and Edoardo Proverbio (University of Messina, Dept. of Engineering, Messina)
11:45 – 12:00	Break	

12:00 – 13:00	Students in action Chairs: Ireneusz Baran, Horst Trattnig	Civil engineering Chair: Els Verstrynge
	<p><i>On the effect of coatings and pre-corrosion during fatigue tests of 7075-T6 aluminum alloy monitored with Acoustic Emission (AE)</i> Théophile Vié, Nathalie Godin, Stéphanie Deschanel, Bernard Normand (Univ Lyon)</p> <p><i>Hydrogen induced cracks monitored with Acoustic Emission under the laboratory condition</i> Dandan Liu, Han Yang, Bin Wang, Stephen Grigg (TWI Ltd, Granta, Cambridge, Brunel University London)</p> <p><i>Characterization and early detection of hydrogen embrittlement in offshore bolts using acoustic emission</i> Nokhaiz Sabir, Dr Duncan Billson, Dr David Hutchins (University of Warwick), Dr Stephen Grigg (TWI Ltd)</p>	<p><i>NDE4.0 a natural step for Acoustic Emission</i> Valery Godinez-Azcuaga, Obdulia Ley, Arturo Nunez, Ed Lowenhar, (Mistras Group, Inc., Products & Systems Division, USA), Spilios Kattis Mistras Group Hellas, Athens, Greece)</p> <p><i>Multimodal NDT monitoring of TRC sandwich under bending and early detection of interlaminar debonding</i> Nicolas Ospitia, Eleni Tsangouri, Dimitrios G. Aggelis (Department of Mechanics of Materials and Constructions) Ali Pourkazemi, Johan H. Stiens (Department of Electronics and Informatics (ETRO))</p> <p><i>In situ consideration of resistance of bridge girder according to EC2 with AEM</i> Ana Brunčič, Maja Kreslin, Andrej Anžlin, Aljoša Šajna (Slovenian National Building and Civil Engineering Institute), Andrej Štrukelj (University of Maribor)</p>
13:00 – 14:30	Lunch break	
14:30 – 16:10	Students in action Chairs: Ireneusz Baran, Valery Godinez-Azcuaga	Pressure vessel Chairs: Nassos Anastasopoulos, Tomaž Kek
	<p><i>Investigation of background noise affecting ae data acquisition during tensile loading of frps</i> Maria Gfrerrer, Johannes Wiener, Gerald Pinter (Montanuniversität Leoben), Andreas J. Brunner (retired from Empa)</p> <p><i>Characterization of optical AE signals at loading of fibre reinforced composites</i> Martin Misson, Primož Potočnik, Tomaž Kek, Zoran Bergant, Mario Sorgente, Edvard Govekar, Roman Šturm (Faculty of Mechanical Engineering, University of Ljubljana, LTH Castings d.o.o., Optics 11)</p> <p><i>Acoustic emission classification by cross-correlation</i> Théotime de la Selle, Stéphanie Deschanel (Univ Lyon), Jérôme Weiss (Université Grenoble-Alpes)</p> <p><i>Crack mode analysis of cement mortars with signal-based acoustic emission techniques</i> Nuhamin Eshetu Deresse, Charlotte Van Steen, Mina Sarem, Stijn François, Els Verstrynge (Department of Civil Engineering, KU Leuven)</p>	<p><i>Failure forecast method applied on burst test data to valuate its practicability for acoustic emission testing and monitoring purposes</i> Gerald Lackner, Heribert Marihart, Mikhail Prokofyev (TÜV Austria SERVICES GMBH)</p> <p><i>Development of an Acoustic Emission Technology Package for COPVs Inspection and Recertification</i> Obdulia Ley, Valery Godinez-Azcuaga (Mistras Group, Inc., Products & Systems Division, USA)</p> <p><i>Valve inspection with acoustic emission – What are the boundaries, what are new opportunities for predictive maintenance?</i> Michael Hettegger, Christoph Altmann (Senseven GmbH)</p> <p><i>Internet of Things Acoustic Emission for Unattended Quantitative Leakage Monitoring</i> Jiehui Xie, Zhipeng Xie, Yating Liu (Qingcheng AE Institute (Guangzhou) Co., Ltd)</p> <p><i>Impact source identification on pipes using acoustic emission Energy</i> Chika Judith Abolle-Okoyeagu (Robert Gordon University), Javier Palacio Torralba, Yuhang Chen, Robert Reuben (Heriot Watt University)</p>
16:30	General Assembly of EWGAE	
18:00		III-AE Steering Committee Meeting

Friday, September 16th, 2022

	<i>The Orchid hall</i>	<i>The Iris hall</i>
9:00 – 9:35	Keynote Chair: Michele E.R.M. Carboni	
	<i>PUSHING THE LIMITS OF ACOUSTIC EMISSION FOR THE BENEFIT OF ADVANCED MATERIALS DEVELOPMENT</i> <i>Dimitrios Aggelis</i> Vrije Universiteit Brussel, Belgium	
9:35 – 10:55	Process monitoring Chairs: Dimitrios Aggelis, Michele E.R.M. Carboni	
	<p><i>When AM (Additive Manufacturing) meets AE (Acoustic Emission) and AI (Artificial Intelligence)</i> Kilian WASMER, Giulio Masinelli, Tri Quang-le, Sergey A. Shevchik (Empa - Swiss Federal Laboratories for Materials Science and Technology), Rita Drissi-Daoudi, Roland Loge (Ecole Polytechnique Fédérale de Lausanne)</p> <p><i>Long term coupling of AE sensors in high temperature environment</i> Anne Juengert, Maximilian Friedrich, Andreas Klenk (University of Stuttgart)</p> <p><i>Use of acoustic emission to monitor adipic acid crystallization</i> Roger de Souza Lima, Ana Cameirão, Eric Serris (Univ Lyon)</p> <p><i>Online monitoring of manufacturing processes by acoustic emission</i> Abdelkrim SAIDOUN, Quang Ahn VU, Fan ZHANG (CETIM)</p>	
10:55 – 11:10	Break	
11:10 – 12:50	Advanced composites and signal processing Chairs: Nathalie Godin, Stéphanie Deschanel	AE testing and AE standardization Chair: Gerald Lackner
	<p><i>Simulation of acoustic emission in carbon fiber-epoxy matrix composite laminates due to tranverse cracking: effect of ply stacking sequence.</i> Aurélien Doitrand, Zeina Hamam, Nathalie Godin, Pascal Reynaud, Claudio Fusco, Nicolas Carrère (INSA de Lyon)</p> <p><i>Acoustic emission for identification of the dominant stress component in polymer composites at early loads</i> Kalliopi-Artemi Kalteremidou, Dimitrios G. Aggelis, Danny Van Hemelrijc, Lincy Pyl (Vrije Universiteit Brussel)</p>	<p><i>A new ISO Standard for AE sensor sensitivity determination uses the face-to-face stimulation method</i> Hartmut Vallen (Vallen Systeme GmbH)</p> <p><i>Evaluation of experience from long-term AE monitoring</i> Andreas J. Brunner (retired from Empa, Swiss Federal Laboratories for Materials Science and Technology), Horst Trattng (Vallen Systeme GmbH)</p> <p><i>Acoustic emission monitoring of immersion quenching bath attributes</i> Bor Mojškerc, Janez Grum, Tomaž Kek, Roman Šturm (Faculty of Mechanical Engineering)</p>

	<p><i>Evaluation of the mechanical behaviour of poplar specimens with and without fingers subjected to tensile stress by means of acoustic emission and DIC</i> Francisco J. Rescalvo, María Portela, Rafael Bravo, Jose Lorenzana, Carlos Cruz-Rodríguez, Manuel Guaita and Antolino Gallego (<i>University of Granada, University of Santiago de Compostela</i>)</p> <p><i>A Computational Study of AE Signal due to Fiber Break and Fiber Matrix Debonding in Model Composite.</i> Zeina Hamam, Nathalie Godin, Aurelien Doitrand, Claudio Fusco and Thomas Monnier (<i>INSA de Lyon</i>)</p>	<p><i>An acoustic emission approach to the structural health monitoring of historical metallic tie-rods</i> Michele Carboni, Francesco Muscolino and Roberto Felicetti (<i>Politecnico di Milano</i>)</p> <p><i>Development of new AE technology to detect and characterize leak on Nuclear shielding building from inside during Integrated Leakage Rate Test</i> Alain Proust, Jean Marie Henault, Benoit Masson, Benoît MASSON (<i>MISTRAS Group, EDF – R&D PRISME, CMG EDF – DIPNN</i>)</p>
13:00	Conference closure	
	Light lunch	

Poster presentations

Research posters of A0 format (affixed to a proposed board) with attendance and answering questions posed by passing colleagues during the scheduled poster presentation (September 15th, 16:10 – 16:45).

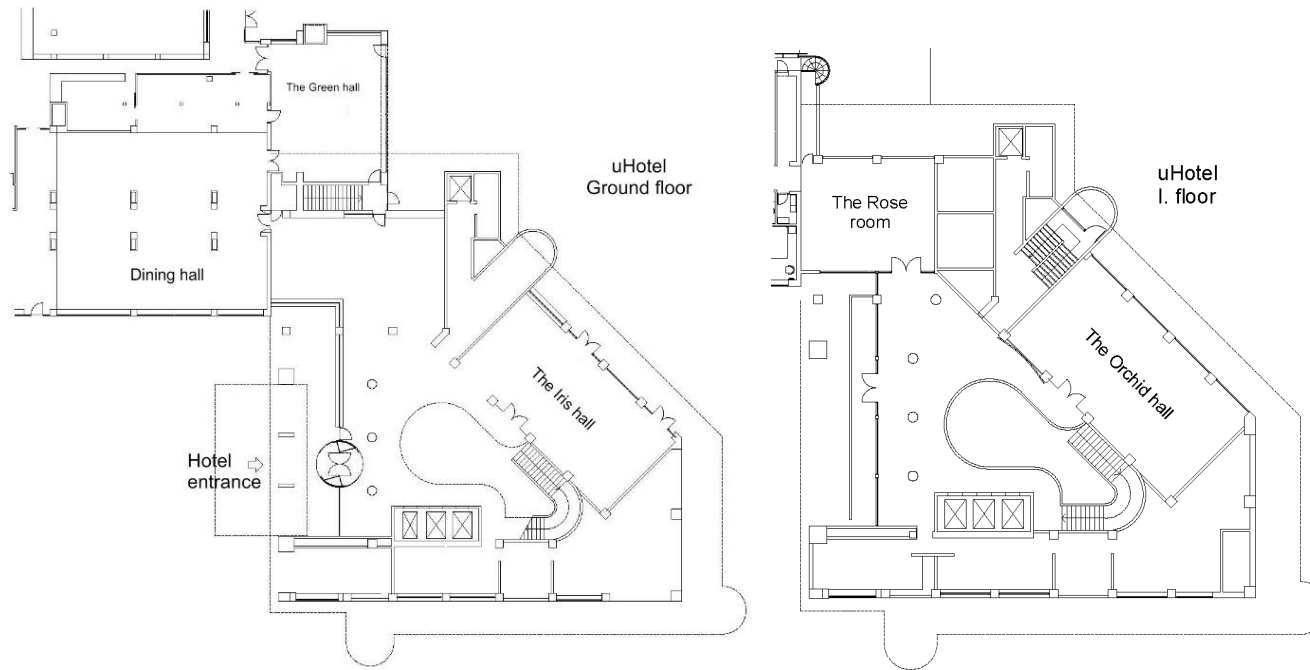
<p><i>Experimental characterization, modelling and simulation of AE signal due to crack propagation in PMMA</i> Xi Chen, Nathalie Godin, Aurelien Doitrand and Claudio Fusco (<i>INSA de Lyon, Univ. Lyon, MATEIS UMR 5510, F-69621 Villeurbanne</i>)</p>
<p><i>Field-experiences of tracking plant's xylem embolism formation with embedded acoustic emission sensors</i> Dinko Oletić, Sabine Rosner and Vedran Bilas (<i>University of Zagreb, Faculty of Electrical Engineering and Computing, BOKU Vienna, Institute of Botany</i>)</p>
<p><i>Prospects on application of elastic metamaterials in acoustic emission sensing</i> Zbigniew Klimek, Paweł Paćko (<i>Office of Technical Inspection (UDT), AGH University of Science and Technology</i>)</p>

Keynote presentation – 30 min + 5 min discussion

Oral presentation – 15 min + 5 min discussion

Companies in Action presentation – 15 min

The organizers may change this program if necessary



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