



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	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 Verstryngge KU Leuven, Department of Civil Engineering, Leuven, Belgium</p>	
10:40-11:00	Break	
11:00-12:00	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	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	Monitoring of metallic structures
	Chair: Michele E.R.M. Carboni	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 Grandier, Anne-Laure Gorge, Maxime Cruz (<i>Institut Prime, 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	
	<p><i>ACOUSTIC EMISSION OF COMPOSITES - ABOUT THE WHEN, WHERE AND WHAT AND THE RESIDUAL CAPACITY</i> Markus Sause University of Augsburg, Germany</p> <p><i>CONTRIBUTION OF ELASTIC WAVE APPROACHES TO CIVIL ENGINEERING DIGITAL TRANSFORMATION</i> Tomoki Shiotani Kyoto University, Japan</p>	
10:10 – 10:25	Break	
10:25 – 11:45	Students in action Chairs: Ireneusz Baran, Horst Trattnig	Civil engineering Chair: Antolino Gallego
	<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 (<i>Department of Civil Engineering, KU Leuven</i>)</p> <p><i>Monitoring of fresh concrete with Super Absorbent Polymers (SAPs) using Acoustic Emission (AE)</i> Eleni Korda, Eleni Tsangouri, Dimitrios G. Aggelis (<i>Vrije Universiteit Brussel</i>), Didier Snoeck (<i>Université Libre de Bruxelles</i>), Geert De Schutter (<i>Gent University</i>)</p> <p><i>Identification of internal damages in reinforced concrete slabs using probability density field of acoustic emission events</i> Fengqiao Zhang, Yuguang Yang (<i>Delft University of Technology</i>), Max A.N. Hendriks (<i>Norwegian University of Science</i>)</p> <p><i>Development of novel acoustic emission source location method utilizing wavelet transform and Akaike information criterion</i> Yoshito Suzuki, Takuma Matsuo (<i>Meiji University</i>)</p>	<p><i>Acoustic emission activation protocols for alkali-silica reaction damage assessment in concrete</i> Charlotte Van Steen, Els Verstrynge (<i>Department of Civil Engineering, KU Leuven</i>)</p> <p><i>Acoustic emission monitoring of the textile reinforced CEMENT (TRC)-to-masonry shear bond</i> Nadège Reboul (<i>Université Claude Bernard Lyon</i>), Mohamed Saidi (<i>Université Savoie Mont Blanc</i>), Aron Gabor (<i>Université Claude Bernard Lyon</i>)</p> <p><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 (<i>University of Messina, Dept. of Engineering, Messina, Italy</i>)</p> <p><i>AE localization issues in heavy reinforced post-tensioned concrete beams</i> Giuseppe Scionti, Luigi Calabrese and Edoardo Proverbio (<i>University of Messina, Dept. of Engineering, Messina</i>)</p>
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: 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>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)</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: Markus Sause	
	<p>KEYNOTE LECTURE <i>Dimitrios Aggelis</i> Vrije Universiteit Brussel, Belgium</p>	
9:35 – 10:55	Process monitoring Chairs: Markus Sause, Dimitrios Aggelis	
	<p>When AM (Additive Manufacturing) meets AE (Acoustic Emission) and AI (Artificial Intelligence) 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>Long term coupling of AE sensors in high temperature environment Anne Juengert, Maximilian Friedrich, Andreas Klenk (University of Stuttgart)</p> <p>Use of acoustic emission to monitor adipic acid crystallization Roger de Souza Lima, Ana Cameirão, Eric Serris (Univ Lyon)</p> <p>Online monitoring of manufacturing processes by acoustic emission Abdelkrim SAIDOUN, Quang Ahn VU, Fan ZHANG (CETIM)</p>	
10:55 – 11:10	Break	
11:10 – 12:50	Advanced composites and signal processing Chair: Nathalie Godin, Stéphanie Deschanel	AE testing and AE standardization Chair: Gerald Lackner
	<p>Simulation of acoustic emission in carbon fiber-epoxy matrix composite laminates due to tranverse cracking: effect of ply stacking sequence. Aurélien Doitrand, Zeina Hamam, Nathalie Godin, Pascal Reynaud, Claudio Fusco, Nicolas Carrère (INSA de Lyon)</p> <p>Acoustic emission for identification of the dominant stress component in polymer composites at early loads Kalliopi-Artemi Kalteremidou, Dimitrios G. Aggelis, Danny Van Hemelrijc, Lincy Pyl (Vrije Universiteit Brussel)</p>	<p>A new ISO Standard for AE sensor sensitivity determination uses the face-to-face stimulation method Hartmut Vallen (Vallen Systeme GmbH)</p> <p>Evaluation of experience from long-term AE monitoring Andreas J. Brunner (retired from Empa, Swiss Federal Laboratories for Materials Science and Technology), Horst Trattng (Vallen Systeme GmbH)</p> <p>Acoustic emission monitoring of immersion quenching bath attributes Bor Mojškerc, Janez Grum, Tomaž Kek, Roman Šturm (Faculty of Mechanical Engineering)</p>

	<p>Evaluation of the mechanical behaviour of poplar specimens with and without fingers subjected to tensile stress by means of acoustic emission and DIC 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>A Computational Study of AE Signal due to Fiber Break and Fiber Matrix Debonding in Model Composite. Zeina Hamam, Nathalie Godin, Aurelien Doitrand, Claudio Fusco and Thomas Monnier (<i>INSA de Lyon</i>)</p>	<p>An acoustic emission approach to the structural health monitoring of historical metallic tie-rods Michele Carboni, Francesco Muscolino and Roberto Felicetti (<i>Politecnico di Milano</i>)</p> <p>Development of new AE technology to detect and characterize leak on Nuclear shielding building from inside during Integrated Leakage Rate Test 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).

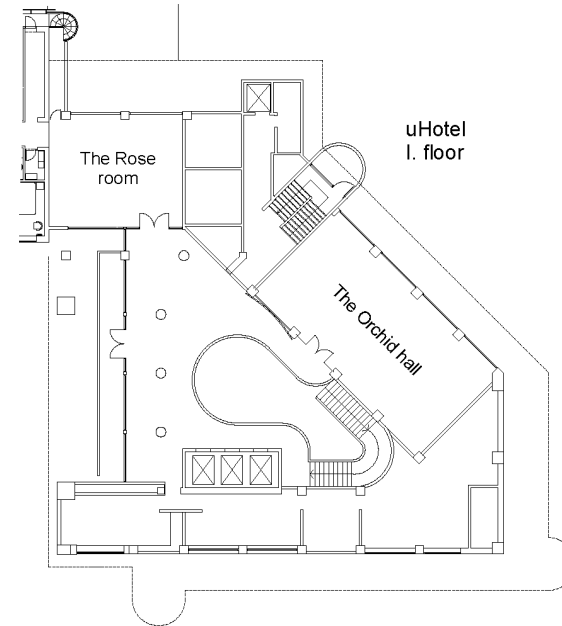
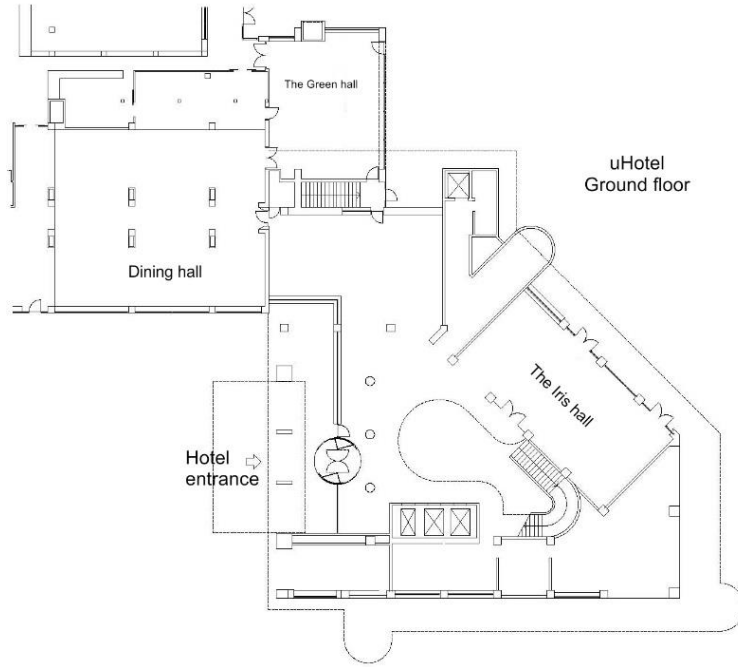
<p>Experimental characterization, modelling and simulation of AE signal due to crack propagation in PMMA Xi Chen, Nathalie Godin, Aurelien Doitrand and Claudio Fusco (INSA de Lyon, Univ. Lyon, MATEIS UMR 5510, F-69621 Villeurbanne)</p>
<p>Field-experiences of tracking plant's xylem embolism formation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