

November 6, Tuesday

Seminar Room 401

Registration 09:00 – 16:50

Lecture Hall

Seminar Room 403

Opening Address 09:30 – 09:40
Chairman of Organizing Committee of IAES-24 T. Shiotani (Kyoto University)

Keynote Lecture I 09:40 – 10:20
Chairperson: Y. Mizutani

Contribution of acoustic emission technologies for rational maintenance of infrastructures (Only Presentation)
T. Shiotani (Kyoto University, *Japan*)

Concrete I 10:20 – 11:00
Chairperson: T. Shiotani

Acoustic emission measurements during three-point bending fatigue test on a prestressed reinforced concrete railroad sleeper
G. Manthei (THM University of Applied Sciences, *Germany*), M Koob, M. Walther, J. Minnert, H. Moriya (Tohoku University)

ISO standards of AE measurements in concrete
M. Ohtsu (Kyoto University, *Japan*)

Sensor 11:20 – 12:20
Chairperson: T. Matsuo

Basic acoustic field response of piezo-electric AE transducers
M. Shiwa (Happy Science University, *Japan*)

Obtaining AE sensor sensitivity curves verified by laser vibrometry
H. Vallen (Vallen Systeme GmbH, *Germany*)

Sensing stability of the Fabry-Perot interferometer type optical fiber AE sensor with fiber Bragg gratings
H. Yuki (The University of Electro-Communications, *Japan*), Y. Tsukamoto

Concrete II 13:50 – 14:50
Chairperson: N. Okude

The relation between applied stress and ultrasonic velocity variation in concrete under uniaxial compressive stress
K. Ohno (Tokyo Metropolitan University, *Japan*), K. Uji, A. Ueno, H. Shinozaki (Sumitomo Mitsui Construction Co., Ltd.), K. Tamaki, Y. Nonami

Acoustic emission data clustering for analysing damage mechanisms due to chloride-induced corrosion in reinforced concrete
C. Van Steen (KU Leuven, *Belgium*), L. Pahlavan (TU Delft), M. Wevers (KU Leuven), E. Verstryngne

Fundamental study on AE analysis and tomography technique with non-contact laser impact for damage detection in concrete
K. Hashimoto (Kyoto University, *Japan*), T. Shiotani, M. Nishikino (National Institutes for Quantum and Radiological Science and Technology), K. Mikami, N. Hasegawa, T. Kitamura

Structures & Diagnostics 15:10 – 16:50
Chairperson: K. Ohno

Attenuation of guided-waves in AE detection
K. Ono (University of California, Los Angeles, *USA*)

Detection of damage sources in the underground waterworks pipelines by enhanced signal analysis
D.-J. Yoon (Korea Research Institute of Standards and Science, *Republic of Korea*), S.-H. Lee (Korea Research Institute of Standards and Science, University of Science and Technology), C.-S. Park (Korea Research Institute of Standards and Science)

An iterative method for reconstruction of near surface cavities using guided surface waves
B. Wang (Nanjing University of Aeronautics and Astronautics, *China*), Z. Qian, S. Hirose (Tokyo Institute of Technology)

Selection of acoustic emission sensor for application of bridge cable monitoring based on experimental results
D.-W. Seo (Korea Institute of Civil Engineering and Building Technology, *South Korea*), G.-Y. Kim, K.-T. Park, D.-H. Kim (Rectuson Ltd.)

A wavelet transform method for noise processing of flaw reconstruction in ultrasonic guided SH waves
Z. Qian (Nanjing University of Aeronautics and Astronautics, *China*), Y. Da, B. Wang

Composite I 11:20 – 12:20
Chairperson: H. Nakamura

Acoustic emission from unilateral bending of large CFRP plates
M. Nowak (Central Laboratory of Technical Inspection, *Poland*), I. Baran, K. J. Konstowicz (University of Bielsko-Biala)

The influence of multiaxiality in angle-ply carbon/epoxy laminates on the Kaiser/Felicity effects under incremental loading
K. A. Kalterimidou (Vrije Universiteit Brussel, *Belgium*), E. Tsangouri, B. R. Murray (Vrije Universiteit Brussel, SIM M3 Program), L. Pyl (Vrije Universiteit Brussel), D. G. Aggelis, D. Van Hemelrijck
Experimental observation of ultrasonic wave propagation in 3D-printed CFRP
T. Ashizawa (Tokyo Institute of Technology, *Japan*), Y. Mizutani, N. Toyama (National Institute of Advanced Industrial Science and Technology), A. Todoroki (Tokyo Institute of Technology), Y. Suzuki

Metal I 13:50 – 14:50
Chairperson: S. Wakayama

Acoustic emission monitoring of nanoindentation process in pure magnesium
C. Yang (The University of Tokyo, *Japan*), P. Chivavibul, F. Briffod, T. Shiraiwa, M. Enoki

Study on the micro-damage evolution of aluminum alloy under different stress states based on acoustic emission
J. Li (Tianjin University of Science & Technology, *China*), Z. Jia, G. Qi (Tianjin University of Science & Technology, University of Memphis)

New insights into phenomenological modelling of acoustic emission during plastic deformation of metals (Only Presentation)
A. Vinogradov (Norwegian University of Science and Technology, *Norway*), I. Yasnikov (Togliatti State University), D. Merson

Composite II 15:10 – 16:30
Chairperson: T. Sakai

The use of acoustic emission technique to identify micro-damage mechanisms in surface modified sisal fiber-HDPE reinforced composites
R. C. Anaya-Ramírez (Centro de Investigación Científica de Yucatán, *Mexico*), C. R. Rios-Soberanis, P. J. Herrera-Franco

Damage diagnostic and lifetime estimation for composite material with acoustic emission: interests and limitations
N. Godin (INSA Lyon, *France*), P. Reynaud, C. Fusco, G. Fantozzi

Behavior of carbon fiber reinforced thermoplastics plate under compression based on AE activities

R. Murakami (Kyoto University, *Japan*), T. Shiotani, T. Nishida, K. Naito (National Institute for Materials Science), Y. Hayashi (Komatsu Seiren Co., Ltd.), T. Nakayama, T. Murakami (West Nippon Expressway Co., Ltd.)

Acoustic emission monitoring of timber beams strengthened with carbon fiber composite
E. J. Rescalzo (University of Granada, *Spain*), Y. Mizutani (Tokyo Institute of Technology), C. Abarkane (University of Granada), E. Suarez, A. Gallego

November7, Wednesday

Seminar Room 401

Registration **09:00 – 16:50**

Lecture Hall

Seminar Room 403

Structures **09:40 – 11:00**
Chairperson: K. Ohno

Detection of rebar corrosion and corrosion-induced cracking by acoustic emission and ultrasonic methods
T. Watanabe (Tokushima University, *Japan*), K. Nishiyama (West Nippon Expressway Co., Ltd.), H. Fukutomi (Honshu-Shikoku Bridge Expressway Co., Ltd.), C. Hashimoto (Tokushima University)
Evaluation of damage in RC bridge decks reinforced with steel plates under dynamic wheel-loading test by means of AE activities
Y. Feng (Kyoto University, *Japan*), T. Shiotani, T. Nishida, H. Asaue, K. Hashimoto, S. Kayano

Evaluation of crack repair effect for RC slab using velocity distribution of elastic waves
N. Okude (Kyoto University, Tokai Technology Center, *Japan*), T. Shiotani (Kyoto University), T. Nishida, S. Fruno (New Nippon Consultants Co., Ltd.)

Fatigue damage evolution of RC slabs considering water infiltration in wheel-loading test by means of 3D AE tomography
H. Asaue (Kyoto University), T. Shiotani, S. Fukumoto (IHI Inspection & Instrumentation Co., Ltd., *Japan*), Y. Tanaka (Kanazawa Institute of Technology), T. Maeshima (NIPPO Corp.)

Masonry **11:20 – 12:20**
Chairperson: T. Watanabe

Acoustic emission characterization of fracture modes in masonry under direct shear test
N. Shetty (Katholieke Universiteit Leuven), G. Livitsanos (Vrije Universiteit Brussel), D. G. Aggelis, D. Van Hemelrijck, M. Wevers (Katholieke Universiteit Leuven, *Belgium*), E. Verstryngne
AE source localization accuracy optimization in masonry structures
G. Livitsanos (Vrije Universiteit Brussel, *Belgium*), N. Shetty (Katholieke Universiteit Leuven), E. Verstryngne, M. Wevers, D. Van Hemelrijck (Vrije Universiteit Brussel), D. G. Aggelis

Numerical simulation of wave propagation in masonry
G. Livitsanos (Vrije Universiteit Brussel, *Belgium*), N. Shetty (Katholieke Universiteit Leuven), E. Verstryngne, M. Wevers, D. Van Hemelrijck (Vrije Universiteit Brussel), D. G. Aggelis

Diagnostics (Civil Engineering) **13:50 – 14:50**
Chairperson: H. Yuki

AE measurement of PC cable breakage using a full scale PC beam
K. Watabe (Toshiba Corp., NMEMS Technology Research Organization, *Japan*), H. Takamine, Y. Ueda, K. Hashimoto (Kyoto University), N. Okude, T. Shiotani

Propagation characteristics of elastic waves transmitted through sand soils under dry and saturated conditions
M. Nakayama (Ritsumeikan University, *Japan*), H. Kawakata, S. Hirano, I. Doi (Kyoto University), N. Takahashi (Sumitomo Mitsui Construction Co., Ltd.)

The universality of b-value and size effect in acoustic emission: experimental observations in quasi-brittle fracture
N. B. Burud (Indian Institute of Science, *India*), J. M. C. Kishen

Cements **15:10 – 16:10**
Chairperson: T. Suzuki

3D textile reinforced cements: AE inspection of the fracture of this innovative construction material
L. Michels (Vrije Universiteit Brussel), E. Tsangouri, M. E. Kadi, T. Tysmans, D. G. Aggelis (Vrije Universiteit Brussel, *Belgium*)

Assessment of fresh cement-based materials by acoustic emission
E. D. Dzaye (Vrije Universiteit Brussel, Ghent University, *Belgium*), G. De Schutter (Ghent University), D. Aggelis (Vrije Universiteit Brussel)

Understanding long-term mechanical response of textile reinforced cementitious composites using UPV and AE
E. Tsangouri (Vrije Universiteit Brussel, *Belgium*), M. De Munck, O. Remy (CRH Structural Concrete Belgium nv), T. Tysmans (Vrije Universiteit Brussel), D. G. Aggelis

Keynote Lecture II **16:10 – 16:50**
Chairperson: S. Yuyama

Interpretation and Validation of Acoustic Emission Indications (Only Presentation)
A. Anastopoulos (Mistras Group Hellas, *Greece*)

Manufacturing **09:40 – 11:00**
Chairperson: H. Cho

Development of evaluation method of contaminations in spur gears using AE method
K. Sugiyama (Meiji University, *Japan*), T. Matsuo

Development of wireless AE streaming server for monitoring of materials manufacturing processes
K. Ito (National Institute for Materials Science, *Japan*), K. Takahashi (The University of Tokyo), M. Enoki

Wireless AE measurement during friction stir welding of flame-resistant magnesium alloy
K. Takahashi (The University of Tokyo, *Japan*), T. Shiraiwa, M. Enoki, K. Ito (National Institute for Materials Science), E. Yukutake (Industrial Technology Innovation Center of Ibaraki Prefecture)

Research of leak testing in manned spacecraft on-orbit by acoustic emission technology
X. Yu (Beijing Institute of Spacecraft Environment Engineering, *China*), L. Qi, L. Sun

Ceramics, Composite & Rope **11:20 – 12:20**
Chairperson: M. Shiwa

AE characterization of thermal shock fracture of ceramics under different stress states
D. Chiba (Tokyo Metropolitan University, *Japan*), S. Wakayama, T. Matsueda, K. Yoshida (Tokyo Institute of Technology)

Evaluation of fatigue damage process in a CFRP plate with a self-organizing map for AE waveform
Y. Nakai (Aoyama Gakuin University, *Japan*), K. Nishimiya, H. Cho

Evaluation and stabilization of longitudinal elastic modulus of synthetic fiber rope utilizing AT/UT
Y. Arai (Tokyo Institute of Technology, *Japan*), V. Sry, D. Jung, Y. Mizutani, G. Endo

Diagnostics (Mechanical Engineering) **13:50 – 14:50**
Chairperson: M. Enoki

Application of acoustic emission technology in condition monitoring of amusement device
J. Zhang (China Special Equipment Inspection and Research Institute, *China*), G. Shen, Z. Wu, Y. Yuan, R. Liu

Early fault detection technique using acoustic emission and vibration signal processing for condition monitoring system of rotating machinery
D.-H. Kim (RECTUSON Co., Ltd., South Korea), Y.-G. Hong, H.-M. Je

Condition assessment of highly-loaded low-speed bearings using acoustic emission monitoring: a feasibility study
B. Scheeren (Delft University of Technology, *The Netherlands*), L. Pahlavan, M. Kaminski

November 8, Thursday

Seminar Room 401

Registration **09:00 – 16:30**

Lecture Hall

Diagnostics (Miscellaneous I) **09:40 – 11:00**
Chairperson: Y. Mizutani

Acoustic emission technique in identification of cartilage damage in osteoarthritic knee
M. T. I. Khan (Saga University, *Japan*), M. M. Hassan, Y. Nakamura, Y. Sanada, S. Ide

Investigation of origin of vibroarthrographic signals for knee osteoarthritis
T. Sakai (Saitama University, *Japan*), K. Akabane, K. Kodama, K. Kageyama, H. Nakamura (Tokyo Metropolitan University), K. Aimoto (National Center for Geriatrics and Gerontology), K. Hase (Tokyo Metropolitan University), S. Ota (Seijoh University)

The plastic deformation evaluation of degraded A335 P5 steel of technological pipelines by acoustic emission method
I. Lyasota (Cracow University of Technology, *Poland*), L. Sarniak (Warsaw University of Technology), J. C. Schmidt

Use of acoustic emission parameter for detection of hydraulic conditions in service pipeline system
T. Suzuki (Niigata University, *Japan*), Y. Shimamoto (Kitasato University)

Diagnostics (Miscellaneous II) **11:20 – 12:20**
Chairperson: H. Yuki

AE characterization of microdamage during fatigue fracture of flexible solar cell
T. Matsueda (Tokyo Metropolitan University, *Japan*), S. Wakayama, K. Nakahara (F-WAVE Co., Ltd.), A. Takano

Detection of packing error in baked products factory utilizing an acoustic emission method
T. Matsuo (Meiji University, *Japan*), K. Shimonishi, A. Yoshinari, T. Nakamura

Acoustic emission monitoring during laser surface quenching
T. Yasuda (National Institute of Technology, Anan College, *Japan*), M. Kaisho, K. Nishimoto, Y. Okumoto

Signal Processing **13:50 – 14:50**
Chairperson: K. Ito

A gas leak location method of spacecraft in-orbit based on acoustic emission
L. Qi (Beijing Institute of Spacecraft Environment Engineering, Tianjin University, *China*), L. Sun (Beijing Institute of Spacecraft Environment Engineering), Z. Li, R. Yan, Y. Zhao

Analysis of acoustic emissions due to dynamic fracture
V. van Gemmeren (ETH Zurich, *Switzerland*), J. Dual

Zone location and classification of AE source by AI
Y. Mizutani (Tokyo Institute of Technology, *Japan*), F. Tsuchida

Metal II **15:10 – 16:30**
Chairperson: T. Yasuda

AE classification in LPSO-Mg extruded alloys using in-situ observation and machine learning
K. Tamura (The University of Tokyo, *Japan*), T. Shiraiwa, M. Enoki

A new excitation method for MAE
Y. Shen (China Special Equipment Inspection and Research Institute, *China*), G. Shen, B. Wang, W. Zhang (Nanchang Hangkong University)

Extraction of AE signals from the initiation and propagation of stress corrosion cracking in sensitized type 304 stainless steel
T. Suesada (Meiji University, *Japan*), T. Matsuo, I. Shinozaki (IHI Corp.), Y. Sakakibara, G. Nakayama

Acoustic emission during stress corrosion crack initiation and propagation of 13Cr martensitic stainless steel
K. Wu (The University of Tokyo, *Japan*), K. Ito (National Institute for Materials Science), I. Shinozaki (IHI Corp.), P. Chivavibul (The University of Tokyo), M. Enoki

Closing Address **16:30 – 16:35**
Secretary General of IAES-24 Y. Mizutani (Tokyo Institute of Technology)