

**The 19th International Acoustic Emission Symposium
(IAES-19)**

Fukui Institute of Fundamental Chemistry
Kyoto University, Japan

Sponsored by
JNSDI & Graduate School of Engineering, Kyoto University

Tentative Program

Tuesday, December 9

Registration **8:30 - 8:50**

Opening Address **8:50 - 9:00**

Sensor 1 **9:00 - 10:30**

Chair person: H. Cho
Aoyama Gakuin University, Japan

Measurement of Plate Thickness by Using Optical Fiber Sensor

Y. Akematsu, K. Kageyama, N. Mohri, H. Murayama
(Department of Mechanical Engineering, Niihama National College of Technology, Japan)

Wireless Acoustic Emission Sensors and Applications

S. J. Yahaviolos, M. F. Carlos, E. Lowenhar, P. T. Cole
(Physical Acoustics Corporation, USA)

Influences of Selected Sources of Uncertainty on AE Sensor Primary Calibration

J. Kepri, P. Benes (PhD student, Dept. Automation, Brno University of Technology, Czech Republic)

Development of Non-resonant Optical Fiber AE Sensors for Measuring Low-Frequency signals

T. Kosaka, N. Koyanagi, K. Osaka, Y. Sawada (Graduate School of Engineering, Osaka City University, Japan)

Electromagnetic Method of Elastic Wave Generation for Acoustic Emission Sensor Calibration

S. Lazarev, A. Vinogradov, A. Mozgovoï, A. Shvedov
(Department of Intelligent Materials Engineering, Osaka City University, Japan)

Corrosion Detection by Fiber Optical AE Sensor

Y. Machijima, M. Azemoto, T. Tada, H. Mori (Lazoc Inc., Japan)

----- Break -----

Materials 1 **10:45 - 11:45**

Chair person: H. Yuki
The University of Electro- Communications, Japan

Wavelet Transform Analysis of AE in Layer-Integrated Steels during Tensile Deformation

Y. Hirose, S. Nambu, M. Enoki (Graduate Student, Department of Materials Engineering, The University of Tokyo, Japan)

Development of Diagnostic Equipment Based on Acoustic Emission Measurements during Ion Beam Material Processing

M. Silkin, M. Styervoyedov (Kharkov National University named after V.N. Karazin, Ukraine)

Evaluation of Fatigue Crack Growth Characteristics of Cermet Studied by Acoustic Emission Technique

T. Sunouchi, H. Cho, T. Ogawa, Y. Kobayashi (Department of Mechanical Engineering, Aoyama Gakuin University, Japan)

Study on Crack Repair of Al₂O₃ Ceramics by YAG Laser Irradiation - Evaluation for Recovery Condition of Bending Strength Based on Chaos Analysis Results of AE Signal-

M. Takuma, N. Shinke, Y. Matsui, Y. Tomatsu (Faculty of Engineering Science, Mechanical Engineering, Kansai University, Japan)

----- Lunch -----

Signal Processing **13:00 - 13:45**

Chair person: R. Hay
Tisec Inc., Canada

A Method for Locating Acoustic Emission Signal Sources by a Single Sensor

O. Bashkov, S. Panin, N. Semashko, D. Shpa
(Komsomolsk-on-Amur State Technical University, Russia)

Crack Localization Using Wavelet Transformation of Dispersive Waves in Steel Plates

P. Sedlak, S. Khan, Y. Hirose, M. Enoki (Department of Materials Engineering, Graduate School of Engineering, The University of Tokyo, Japan)

New Dual AE Signal Processor with Digital Filter Capabilities

H. Vallen (Vallen Systeme GmbH, Germany)

----- Break -----

Manufacturing **14:00 - 15:00**

Chair person: H. Vallen
Vallen Systeme GmbH, Germany

In-situ Detection of Delamination during Plasma Spraying by Laser AE Method

K. Ito, S. Ohmata, M. Watanabe, S. Kuroda, M. Enoki
(Graduate Student, Department of Materials Engineering, The University of Tokyo, Japan)

Source Analysis of AE in Thermal Barrier Coating during Plasma Spraying

S. Ohmata, K. Ito, M. Watanabe, S. Kuroda, M. Enoki (The University of Tokyo, Japan)

Effects of Coated Layer during Die Cutting Process on the AE and Cutting Properties of Paperboard.

I. Kohsaka, Y. Fukuzawa, S. Nagasawa, S. Suzuki
(Graduate student, Mechanical Engineering, Nagaoka University of Technology, Japan)

AE Analysis on Blade Cutting Pressure Adjustment in Dynamic Cutting of Paperboard.

S. Nagasawa, D. Hamid, H. Fukuda, Y. Fukuzawa, A. Hine
(Department of Mechanical Engineering, Nagaoka University of Technology, Japan)

----- Break -----

Materials 2 **15:15 - 16:15**

Chair person: Y. Mizutani
Tokyo Institute of Technology, Japan

Acoustic Emission in Characterizing a Cold-worked CrNiN-Alloy

J. Schmidt, M. Nowak, K. Ono (Cracow University of Technology, Institute of Production Engineering), Poland

Liquid Boiling and Liquid Drop Evaporation as Acoustic Emission Sources

P. Benes, J. Keprt (Department of Automation, Brno University of Technology, Czech Republic)

Identification of Defects under Loading by Wavelet Analysis of Acoustic Emission Signals

S. Panin, O. Bashkov, N. Semashko, D. Shpak (Institute of Strength Physics and Materials Science of SB RAS, Russia)

Early Identification of Hydrogen Embrittlement by Indentation with Acoustic Emission Measurements

D. Merson, D. Mesheryakov, A. Vinogradov (Department of Physics and Mechanics of Materials, Togliatti State University, Russia)

----- Break -----

Concrete 1 **16:30 - 17:30**

Chair person: T. Watanabe
The University of Tokushima, Japan

Acoustic Emission Monitoring of Steel Fiber Reinforced Concrete Beams Under Bending Load

D. Aggelis, D. Soulioti, N. Barkoula, A. Paipetis, T. Matikas, T. Shiotani (Department of Materials Science and Technology, University of Ioannina, Greece)

Study of Kaiser Effect in Concrete Material under Cyclic Loading

W. Ko (Geotechnical Engineering Research Center, Sinotech Engineering Consultants, Inc, Taiwan)

AE Properties of Spalling Crack Induced by Reinforcement Corrosion

S. Takaya, T. Yamamoto, T. Miyagawa (PhD student, Department of Civil and Earth Resources Engineering, Kyoto University, Japan)

Acoustic Emission for Characterizing Behavior of Composite Concrete Elements under Flexure

S. Momoki, H. Chai, D. Aggelis, A. Hirama, T. Shiotani (Advanced Sensing and Evaluation Project, Research Institute of Technology, Tobishima Corporation, Japan)

Wednesday December 10

Registration **8:30 - 8:45**

Rock/ Geo. 1 **8:45 - 9:45**

Chair person: T. Spies
Federal Institute for Geosciences and Natural Resources, Germany

Identification of AE Multiplets in the Time and Frequency Domains

H. Asanuma, Y. Kumano, H. Niitsuma, D. Wyborn, U. Schanz (Graduate School of Environmental Studies, Tohoku University, Japan)

Acoustic Emission as Displacement Discontinuities

J. Labuz, C. Kao, F. Carvaiho (Department of Civil Engineering, University of Minnesota, USA)

Acoustic Emission Monitoring during In-Situ Direct Shear Test of Rock

T. Ishida, T. Kanagawa (Department of Civil and Earth Resource Engineering, Kyoto University, Japan)

Distinct Element Analysis for Rock Failure Considering AE Events Generated by the Slip at Crack Surfaces

H. Shimizu, S. Murata, T. Ishida (PhD student, Department of Civil and Earth Resources Engineering, Kyoto University, Japan)

----- Break -----

Concrete 2 **10:00 - 11:00**

Chair person: J. Labuz
University of Minnesota, USA

Acoustic Technique Based Investigation of Old Bridge Girders

T. Bremec, A. Sajna (Slovenian National Building and Civil Engineering Institute, Slovenia)

Flexural Failure Behavior of RC Beams with Rebar Corrosion and Damage Evaluation by Acoustic Emission

M. Kunieda, N. Okude, T. Shiotani, K. Kawamura (Department of Civil Engineering, Nagoya University, Japan)

Weibull Distribution Analysis of Acoustic Emission in Compression Test of Concrete

M. Shigeishi, M. Tsukioka (Graduate School of Science and Technology, Kumamoto University, Japan)

Corrosion Process of Steel Bar in Reinforced Concrete by Acoustic Emission

Y. Tomoda, M. Ohtsu (Faculty of Engineering, Kumamoto University, Japan)

----- Break -----

Materials 3 **11:15 - 12:00**

Chair person: K. Ono
University of California, Los Angeles, USA

Effect of Sensitization Treatment on Hydrogen Embrittlement Cracking of Duplex Stainless Steel

T. Ogawa, K. Kurose, H. Cho, M. Takemoto (Department of Mechanical Engineering, Aoyama Gakuin University, Japan)

Continuous and Burst AE Signal Analyses during Chloride Droplet SCC on Thin SUS304 Plate Specimens

M. Shiwa, H. Yamawaki, H. Masuda, K. Ito, M. Enoki (NDE Group, Innovative Materials Engineering, National Institute for Materials Science, Japan)

Effect of Shot Peening on the Delayed Fracture using the Almen Strip and AE Technique

M. Takemoto, M. Nakamura, S. Masano and S. Ueno (Kanmeta Engineering Co.Lt'd, Japan)

----- Lunch -----

Sensor 2 **13:15 – 14:15**

Chair person: S. J. Vahaviolos
Mistras Holdings Group, USA

Blockage Monitoring of Pipes by Shellfishes Utilizing an Optical Fiber AE System

T. Matsuo, Y. Mizuno, H. Cho (Faculty of Science and Engineering, Aoyama Gakuin University, Japan)

Durability Improvement of Heat-resistant Optical fiber Sensor and Estimation of Its AE Detectability

S. Nishinoiri, H. Fukutomi, T. Ogata (Central Research Institute of Electric Power Industry, Japan)

Improvement of Sensing Ability of the Hybrid Optical Fiber Sensor for Acoustic Emission and Strain

H. Ohkoshi, H. Yuki (The University of Electro-Communications, Japan)

AE Behavior of Smart Stress Memory Patch Applied to Steel Bar

T. Shiraiwa, M Enoki (Graduate student, Department of Material Engineering, The University of Tokyo, Japan)

----- Break -----

Rock/ Geo. 2 **14:30 – 15:15**

Chair person: M. Shigeishi
Kumamoto University, Japan

Estimation of Crustal Structure in Horonobe Area, Hokkaido, Japan, by using Multiplet-Clustering Analysis

H. Moriya, K. Asamori, I. Kitamura, H. Hotta, H. Ohara, T. Niizato (Graduate School of Engineering, Tohoku University, Japan)

Acoustic and Electromagnetic Emission From Crack Created In Rock Sample Under Deformation

K. Fukushima, Y. Mori, Y. Obata, J. Sikula (Department of Mechanical Engineering, Graduate School of Industrial Technology, Nihon University, Japan)

Mechanisms of Humidity Induced Deformation of Rock Salt

T. Spiess, J. Hesser (Rock Physics Section, Federal Institute for Geosciences and Natural Resources, Germany)

Commercial Session **15:20 – 15:50**

Physical Acoustics Corporation, Vallen Systems GmbH, Fuji Ceramics

Special Lecture **16:00 – 17:00**

Chair person: M. Enoki
The University of Tokyo, Japan

New Trends in Materials Research and Nondestructive Evaluation

Prof. T. Kishi (President, National Institute for Materials Science, Japan)

18:30 - 20:30 Banquet

Thursday, December 11

Registration **8:30 – 8:45**

Keynote Lecture **8:45 – 9:30**

*Chair person: T. Shiotani
Kyoto University, Japan*

Monitoring The Civil Infrastructure with Acoustic Emission: A Bridge Case Study

Dr. R. Hay (President, Tisec Inc., Canada)

Continuous Monitoring **9:30 – 10:45**

*Chair person: Y. Moriya
Tohoku University, Japan*

On-Line Asset Monitoring

*P. T. Cole, J. C. Lenain, P. Feres, M. Carlos S. J. Vahaviolos
(Physical Acoustics Limited, UK)*

Crack Growth Inspection with Acoustic Emission Sensors and Hierarchical Clustering for Bridge Health Monitoring

J. Labuz, N. Ince, C. Kao, M. Kaveh, A. Tewfik (Department of Civil Engineering, University of Minnesota, USA)

Acoustic Emission Technique as a Smart Element in Prestressed Concrete Bridges Health Condition Evaluation

M. Kalicka (Kielce University of Technology, Poland)

Acoustic Emission Use for Stress Corrosion Cracking Detection in Prestressing Strands of Bridge Structures

M. Perrin, L. Gaillet, C. Tessier, H. Idrissi (Laboratoire Central des Ponts et Chaussées, France)

Identification of the Health of Rotating Machinery with AE Neural Network Classifiers

E. Pomponi (PhD student, DEIT department, Università Politecnica delle Marche, Italy)

----- Break -----

Materials 4 **11:00 – 12:00**

*Chair person: K. Kageyama
Saitama University, Japan*

Evaluation of Deformation and Recovery Mechanism of Mg Alloys by AE Frequency Analysis

N. Tsurui, M. Enoki (Graduate student, Department of Materials Engineering, The University of Tokyo, Japan)

Acoustic Emission Behavior during Deformation of Al-Mg-Si Alloys

M. Numaue, H. Nishino, K. Yoshida (Graduate Student, Graduate School of Advanced Technology and Science, The University of Tokushima, Japan)

Frequency Analysis of Acoustic Emission During Deformation Process in Electrical Steel

S. Khan, P. Sediak, M. Enoki (Department of Materials Engineering, School of Engineering, The University of Tokyo, Japan)

Acoustic Emission During Tensile and Fatigue Test of Balloon-expanding Cardiovascular Stents

L. Shen, M. Enoki (Department of Materials Engineering, The University of Tokyo, Japan)

12:00- Kyoto Excursion

Friday , December 12

Registration 8:30 - 8:45

Structure 8:45 – 10:15

*Chair person: P.T. Cole
Physical Acoustics Limited, UK*

Acoustic Emission Inspection of Operating Steam Piping for Detection and Assessment of Caustic Corrosion Cracking

G. Muravin, B. Muravin, L. Lezvinsky (Margan Physical Diagnostics Ltd., Israel)

Damage Monitoring of Corrosions under Insulations Using Acoustic Emission and Humidity Measurement.

H. Cho, Y. Tamura, K. Yasui, T. Takuma (Faculty of Science and Engineering, Aoyama Gakuin University, Japan)

Examination of Removal Method for Noise at AE Measurement of Tanks

H. Nakamura, T. Arakawa, K. Sekine, N. Kasai, M. Maeda, H. Suzuki (IHI Inspection & Instrumentation Co., Ltd., Japan)

The Progress of Acoustic Emission Testing for Pressure Vessel in China

G. Shen, S. Liu, G. Li, Y. Wang (China Special Equipment Inspection Institute, China)

A Systematic Approach to Preparation of Acoustic Emission Specialists

B. Muravin, G. Muravin, L. Lezvinsky (Senior Scientist, Margan Physical Diagnostics Ltd., Israel)

Acoustic Emission Method for Solving Problems in Double-Bottom Storage Tanks (Oral Presentation Only)

M. Nowak, I. Baran, J. Schmidt, K. Ono (Laboratory of Applied Research, Cracow University of Technology), Krakow, Poland

----- Break -----

Materials 5 10:30 – 11:45

*Chair person: A. Anastasopoulos
Envirocoustics, Greece*

Growth Development of Martensitic Transformation Behavior in Cu-Al-Ni Shape Memory Alloy Based on Experimental AE Simulation

T. Yasuda, H. Nishino, K. Yoshida (Graduate Student, Graduate School of Advanced Technology and Science, The University of Tokushima, Japan)

Relation between Plastic Instabilities in Iron and Power Spectrum of Acoustic Emission

A. Vinogradov, A. Lazarev, S. Hashimoto (Department of Intelligent Materials Engineering, Osaka City University, Japan)

Threshold Parameters and Damage Accumulation Profile in C/C Composite Monitored by Acoustic Emission Response

A. Bussiba, R. Piat, M. Kupiec, R. Carmi, I. Alon, S. Ifergane (NRCN, Israel)

Fundamental Study on Integrity Evaluation Method for COPVs by Means of Acoustic Emission Testing

Y. Mizutani, R. Matsuzaki, A. Todoroki (Department of Mechanical Sciences and Engineering, Tokyo Institute of Technology, Japan)

Acoustic Emission Behavior of Metal-Fiber Laminates

K. Ono (Department of Materials Science and Engineering, University of California, Los Angeles, USA)

----- Lunch -----

Leak 13:00 – 13:45

*Chair person: G. Shen
AQSIC, China*

Frequency Variations and Surface Loss Analysis of Generated AE Signals during Gas Leakage on Artificially Damaged Pipe

R. Laodeno, H. Nishino, K. Yoshida (Graduate Student, Graduate School of Advanced Technology and Science, The University of Tokushima, Japan)

Acoustic Emission Leak Detection of Buried Pipeline

A. Anastasopoulos, D. Kourousis, K. Bollas, A. Tsimogiannis (Envirocoustics SA, Greece)

Identification of Hydraulic Conditions in a Damaged Pipeline System by Acoustic Emission

T. Suzuki, T. Naka, H. Taruya, M. Aoki, M. Ohtsu (College of Bioresource Science, Nihon University, Japan)

----- Break -----

Concrete 3 14:00– 15:15

*Chair person: M. Kunieda
Nagoya University, Japan*

Classification of Micro-cracks Generated in Concrete by Acoustic Emission

K. Ohno, Y. Sawada, K. Utsunomiya, M. Ohtsu (PhD student, Graduate School of Science and Technology, Kumamoto University, Japan)

Evaluation of Compressive Failure Behavior of Concrete with Coarse Aggregate Soaked in Mineral Oil by Acoustic Emission

S. Uchida, T. Kamada (Division of Global Architecture, Osaka University, Japan)

Degradation Evaluation of Recycled-Aggregate Concrete by AE Rate Process Analysis

M. Ohtsu, T. Isoda, M. Shigeishi (Graduate School of Science and Technology, Kumamoto University, Japan)

Evaluation of Cracking in Recycled Concrete Using Recycled Aggregate by Acoustic Emission

T. Watanabe, M. Hosomi, S. Date, C. Hashimoto, M. Ohtsu (Department of Civil and Environmental Engineer, The University of Tokushima, Japan)

Behaviors of AE Parameters due to Increase in Damage Variable of Mortar Degraded by Mixing with Expanded Polystyrene Beads

K. Yamamoto, A. Kobayashi, S. Aoyama (Graduate School of Agriculture, Kyoto University, Japan)

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Materials 6	15:30 – 16:30
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*Chair person: A. Vinogradov
Osaka City University, Japan*

Fracture Behavior in Bone Characterized by AE Wavelet Analysis

S. Wakayama, K. Mogi, T. Suemune (Department of Mechanical Engineering, Tokyo Metropolitan University, Japan)

Influence of Drought Stress Induced by Cutting Stem on AE Behavior in Miniature Tomato

K. Kageyama, Y. Inoue, H. Kato (School of Science and Engineering, Saitama University, Japan)

Non-Destructive Evaluation of Termite Attack in Wood Using Acoustic Emission Monitoring and Ceramic Gas Sensor

Y. Yanase, Y. Fujii, S. Okumura, T. Yoshimura, Y. Imamura (Graduate School of Agriculture, Kyoto University, Japan)

Acoustic Emission Techniques for Wood Drying - A Review

S. Kawamoto, S. Okumura (Forestry and Forest Products Research Institute, Japan)

Closing Address	16:30 - 16:35
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