



The Japanese Society for Non-Destructive Inspection  
**The 21<sup>st</sup> International Acoustic Emission Symposium**  
**(IAES21-OKINAWA)**  
November 27-30, 2012  
Okinawa Pref. Municipal Center, Okinawa, Japan

## Program

**Tuesday, November 27**

**Registration 17:30-19:30**

**Welcoming Reception 18:00-20:00**

**Wednesday, November 28**

**Registration 9:00-17:00**

**Opening Address 9:30-9:45**

*Prof. Shuichi WAKAYAMA,*  
Tokyo Metropolitan University, Japan

**Concrete 9:45-11:00**

*Chairperson: Gerd MANTHEI*

**Damage Evaluation of Heterogeneous Materials by Q-value Analysis of AE Waveforms**

Tomoki SHIOTANI, Y. TAKADA, T. WATANABE and H. OHTSU, Kyoto University, Japan

**Evaluation of Drying Shrinkage Process in Concrete by AE and RATE Process**

Yuma KAWASAKI, T. MATSUO, Y. MATSUDA, K. IZUNO and M. OHTSU, Ritsumeikan University, Japan

**Comparison of Failure Processes in Bond Strength Tests between Shear and Splitting Tensile in Concrete with Repairing Material by Acoustic Emission**

Kentaro OHNO, S. KUROHARA, K. UJI and A. UENO, Tokyo Metropolitan University, Japan

**AE Indices for Characterization of Concrete Failure Process**

Mielke Rievoulde Irianne Alfrits Josef MONDORINGIN and M. OHTSU, Kumamoto University, Japan

**Contribution of Micro-cracks to Tensile Basic Creep of Mortar in Early-age Evaluated by Acoustic Emission**

Ken WATANABE, N. SAKAKIBARA and J. NIWA, Railway Technical Research Institute, Japan

**Coffee Break 11:00-11:30**

**Instrumentation 11:30-12:30**

*Chairperson: Masayasu OHTSU*

**Data Reduction Approach – A Study for Simplifying Acoustic Emission (AE) Data**

K. NIENHAUS, F. D. BOOS, C. KÜCH and Ralph BALTES, RWTH Aachen University, Germany

**Study of Termite Detection Technology by Acoustical Method**

Hideyuki NAKAMURA, Y. NAGAOKA, H. TASHIRO and W. OHMURA, IHI Inspection & Instrumentation Co., LTD, Japan

**Behavior of Screech Tone Detected during Leak from Gas Pipe in Sand Using AE Method**

Kenichi YOSHIDA, K. TSURI and H. NISHINO, Tokushima Bunri University, Japan

**Acoustic Emission in Planetary Gearboxes: Mathematical Model and Analysis of Experimental Measurements**

Cristián Molina VICUÑA, K. G. PEÑARANDA and K. NIENHAUS, Universidad de Concepción, Chile

**Lunch 12:30-14:00**

**Coatings and Medical Fields 14:00-15:15**

*Chairperson: Yoshihiro MIZUTANI*

**Noise-Resistant Method of AE Events Detection with Multiple Thresholds and Its Application to Plasma Spraying Process**

Kaita ITO, H. KURIKI, H. ARAKI, S. KURODA and M. ENOKI, The University of Tokyo, Japan

**In-situ Evaluation of Plasma Spraying Process of Thermal Barrier Coatings by Laser AE Method**

Hitoshi KURIKI, K. ITO, H. ARAKI, S. KURODA and M. ENOKI, The University of Tokyo, Japan

**AE Studies on Effect of Viscoelasticity of Bovine Cortical Bone on Microdamage Accumulation Behavior**

Takenobu SAKAI, T. MIYAGAWA, E. YOSHIYA, K. YASUI and S. WAKAYAMA, Tokyo Metropolitan University, Japan

**Investigation of Fatigue Micro-Crack Growth in Ceramic / Dentin Adhesive Interface Using the Acoustic Emission Technique**

Chun-Li LIN, J. J. YU, S F. HUANG, W. J. CHANG and Y. H. CHANG, National Yang-Ming University, Taiwan

**AE Monitoring of Damage Process of Rabbit Patellar Tendon under Various Strain Rate**

Satomi SUZUKI, T. SAKAI, S. WAKAYAMA and E. YAMAMOTO, Tokyo Metropolitan University, Japan

**Coffee Break 15:15-15:45**

**Structures and Manufacturing – 1 15:45-16:45**

*Chairperson: Shigenori YUYAMA*

**Classification of AE Sources during Welding Process**

Feng LIU, K. ITO, T. KASUYA and M. ENOKI, The University of Tokyo, Japan

**Evaluation of Effect of Water Layer on Impact Force during Laser Shock Peening Process by AE Method**

Tomoki TAKATA, M. ENOKI, A. MATSUI and Y. KOBAYASHI, The University of Tokyo, Japan

**Rotor Blade Crack Detection by Means of Acoustic Emission**

Siripong CHEANKLIN, K. ANURAKPONGSATORN, W. CHABTHANOM, P. RATTANANGAM, S. WIJITTHONGREUNG and P. KUNTHONG, Rayong Engineering and Plant Service Co., Ltd., Thailand

**Use of Acoustic Emission for Damage Estimation of Concrete Irrigation Infrastructures in Disaster Areas due to the Great East Japan Earthquake**

Tetsuya SUZUKI, T. NAKA and M. OHTSU, Niigata University, Japan

**Thursday, November 29**

**Registration 9:00-12:30**

**Sensor Device 9:15-10:30**

*Chairperson: Peter TSCHELIESNIG*

**Intrinsically Safe Acoustic Emission Equipment Opens the Door to Permanent Monitoring Applications in Explosion Hazardous Areas**

Hartmut VALLEN and T. THENIKL, Vallen Systeme GmbH, Germany

**New Acoustic Emission Sensor for Detection of Partial Discharge at Oil-Immersed Transformer**

G. W. KIM, Ki-Bok KIM, K. S. BAEK, J. K. JEONG, D. J. YOON, M. Y. CHOI and K. H. KIM, Korea Research Institute of Standards and Science, Korea

**Characteristics of Electrical Discharge Pulse Sound at High Temperature**

Yoshiaki AKEMATSU, K. KAGEYAMA, H. MURAYAMA, Y. MACHIJIMA, T. TANI and H. GOTOH, Tsukuba University of Technology, Japan

**Acoustic Emission Measurement Using an FBG Ultrasound-Detection System Incorporating a Fiber Ring Laser**

H. TSUDA, Atsushi TOYAMA, K. KUMAKURA, H. NAKATANI and S. OGIHARA, Tokyo University of Science, Japan

**Frequency Characteristics and Directivity of Interferometer Type Optical Fiber AE Sensor in Underwater Measurement**

Daiki KIMURA and H. YUKI, The University of Electro-Communications, Japan

**Coffee Break 10:30-11:00**

**Materials Characterization – 1 11:00-12:30**

*Chairperson: Kenichi YOSHIDA*

**Unique AE from Ammonia Stress Corrosion Cracking of Brass**

Mikio TAKEMOTO, M. NAKAMURA and S. UENO, Kanmeta Engineering Co. Ltd., Japan

**In-situ Observation of SCC in SUS304 Stainless Steel by AE and VMS**

Mitsuharu SHIWA, B. MICHAL, H. YAMAWAKI, H. MASUDA, K. ITO and M. ENOKI, National Institute for Materials Science, Japan

**Classification of AE Signals in Single Crystal Fe-Si Steels Using Principal Component Analysis and k-Means Clustering**

Pornthep CHIVAVIBUL and M. ENOKI, The University of Tokyo, Japan

**AE Simulations for the Dynamic Behavior Analysis of Martensitic Transformation in Cu-Al-Ni Shape Memory Alloy**

Takeshi YASUDA, B. J. PANG, H. NISHINO and K. YOSHIDA, Anan National College of Technology, Japan

**Evaluation of Twinning-Detwinning and Dislocation Movement in AZ31 Magnesium Alloy by AE Method**

Takashi YASUTOMI and M. ENOKI, The University of Tokyo, Japan

**Evaluation of Grain Size Effect on Anisotropic Properties of Hot Rolled AZ31 Mg Alloy by AE Analysis**

Kousuke MATSUMOTO, T. YASUTOMI and M. ENOKI, The University of Tokyo, Japan

**Lunch 12:30-14:00**

**Excursion 14:00-**

*Supported by Yamaguchi Fund*

**Buffet Party 18:30-20:30**

*Master of Ceremony: Kaita ITO*  
The University of Tokyo, Japan

**Friday, November 30**

**Registration 9:00-12:00**

**Geotechnical / Rock Engineering 9:15-10:30**

*Chairperson: Tomoki SHIOTANI*

**Application of the Collapsing Method on Acoustic Emission Events during Microcracking around a Gas-Pressure Loaded Borehole in Rock Salt Formation**

Gerd MANTHEI, H. MORIYA and T. POPP, Technische Hochschule Mittelhessen, Germany

**Detection of Mining-Induced Fractures around a Stope in Ezulwini Gold Mine, South Africa, by Using AE Events with Similar Waveforms**

Hirokazu MORIYA, M. NAOI, M. NAKATANI, O. MURAKAMI, T. KGARUME, A. K. WARD, R. DURRHEIM, J. PHILIPP, Y. YABE, H. KAWAKATA and H. OGASAWARA, Tohoku University, Japan

**Monitoring of AE Activity around a Large-Diameter Borehole in Rock Salt**

D. DÖRNER, J. PHILIPP, Gerd MANTHEI and T. POPP, GMuG Gesellschaft für Materialprüfung und Geophysik, Germany

**Application of AE Tomography for Fracture Visualization of Rock Material**

Kunya IWAMOTO, T. SHIOTANI, Y. KOBAYASHI and S. MOMOKI, Kyoto University, Japan

**Acoustic Emissions as a Tool for Material Identification in Rock Cutting**

K. NIENHAUS, Kenny Garate PEÑARANDA, C. KLEIN, F. D. BOOS and R. BALTES, RWTH Aachen University, Germany

**Coffee Break 10:30-11:00**

**Materials Characterization – 2 11:00-12:00**

*Chairperson: Dong-Jin YOON*

**Characteristics of Acoustic Emission from Lithium Ion Batteries with Different Type Carbonaceous Materials**

Takuma MATSUO and H. CHO, Meiji University, Japan

**Quantitative Evaluation of Micro/Nano-Adhesion by AE Technique**

Alan HASE, H. MISHINA and M. WADA, Saitama Institute of Technology, Japan

**AE Evaluation of Thermal Shock Fracture Process in Silicon Nitride with Controlled Grain Size**

Go KAMETANI, T. SAKAI, S. WAKAYAMA and K. YOSHIDA, Tokyo Metropolitan University, Japan

**Study on Evaluation of Interlaminar Shear Strength for Deteriorated CFRP Laminate Plate by Environmental Factor with AE Method**

Masanori TAKUMA, S. TAKADONO, K. SAITOH, Y. TAKAHASHI and T. SASAKI, Kansai University, Japan

**Lunch 12:00-13:00**

**Structures and Manufacturing – 2 13:00-13:45**

*Chairperson: Hartmut VALLEN*

**Detection and Evaluation of Damages in the Wind Turbine Blade Using Acoustic Emission Monitoring**

Dong-Jin YOON, B. H. HAN and Y. H. HUH, Korea Research Institute of Standards and Science, Korea

**Acoustic Emission from Composite Overwrapped Pressure Vessels**

Yoshihiro MIZUTANI, S. SUGIMOTO, M. KOBAYASHI, A. TODOROKI, Y. SUZUKI, T. SUDO and K. AOKI, Tokyo Institute of Technology, Japan

**Corrosion and Crack Monitoring by Means of Acoustic Emission (AE) on Surface Transport Products**

Peter TSCHELIESNIG, TÜV Austria Services GmbH, Austria

**Closing Address 13:45-14:00**

*Prof. Manabu ENOKI*,  
The University of Tokyo, Japan