# USE2016 Schedule

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<th>Nov. 16 (Wed)</th>
<th>Nov. 17 (Thu)</th>
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<td><strong>Opening Ceremony</strong></td>
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<td><strong>1E1-1~3</strong></td>
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<td>Sonochemistry</td>
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<td>Chair: Younggyu Son (Kumoh National Institute of Technology)</td>
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<td><strong>Poster Session</strong></td>
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<td>2P1-1<del>8, 2P2-1</del>10, 2P3-1<del>6, 2P4-1</del>12, 2P5-1<del>16, 2P6-1</del>6</td>
<td>2P1-1<del>8, 2P2-1</del>10, 2P3-1<del>6, 2P4-1</del>12, 2P5-1<del>16, 2P6-1</del>6</td>
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<td>Chair: Naotaka Nitta (AIST)</td>
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<td>10:30-11:30</td>
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<td><strong>Poster Session</strong></td>
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<td>3P1-1<del>7, 3P2-1</del>10, 3P3-1<del>6, 3P4-1</del>11, 3P5-1<del>15, 3P6-1</del>7</td>
<td>3P1-1<del>7, 3P2-1</del>10, 3P3-1<del>6, 3P4-1</del>11, 3P5-1<del>15, 3P6-1</del>7</td>
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<td>Chair: Naoto Wakatsu (University of Tsukuba)</td>
<td>Chair: Naoto Wakatsu (University of Tsukuba)</td>
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<td><strong>Measurement techniques I</strong></td>
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<td>Chair: Oliver Wright (Hokkaido University)</td>
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<td><strong>2PL</strong></td>
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<td>Plenary Talk I</td>
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<td>Pak-Kon Choi (Meiji University)</td>
<td>Plenary Talk II</td>
<td>Jeasoo Kim, Gilsoo Byun (Korea Maritime and Ocean University)</td>
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<td>Chair: Kyuichi Yasui (AIST)</td>
<td>Chair: Kang Lyeol Ha (Pukyong National University)</td>
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<td><strong>1E3-1~6</strong></td>
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<td>Ocean acoustics, Biomedical ultrasound I</td>
<td>Ocean acoustics, Biomedical ultrasound I</td>
<td>Biomedical ultrasound II</td>
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<tr>
<td>Chair: Kyu Chil Park (Pukyong National University)</td>
<td>Chair: Kyu Chil Park (Pukyong National University)</td>
<td>Chair: Tsuyoshi Shina (Kyoto University)</td>
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<td>14:15</td>
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<td>1P1-1<del>8, 1P2-1</del>9, 1P3-1<del>5, 1P4-1</del>12, 1P5-1<del>14, 1P6-1</del>10</td>
<td>1P1-1<del>8, 1P2-1</del>9, 1P3-1<del>5, 1P4-1</del>12, 1P5-1<del>14, 1P6-1</del>10</td>
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<tr>
<td>Chair: Takeshi Morita (University of Tokyo)</td>
<td>Chair: Takeshi Morita (University of Tokyo)</td>
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<td>15:10</td>
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<tr>
<td><strong>Organizing Committee Meeting</strong></td>
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<td>17:10-18:00</td>
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<td><strong>Awards Ceremony</strong></td>
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<td>18:00-20:00</td>
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<td>Banquet</td>
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Wednesday, November 16

9:30-9:45 OPENING

9:45-10:30 Sonochemistry Chair: Younggyu Son (Kumoh Natl. Inst. of Tech.)

1E1-1 Numerical simulations of extreme conditions in a dissolving ultrafine bubble in the absence of ultrasound
Kyuichi Yasui†, Toru Tuziuti, Wataru Kanematsu (AIST)

1E1-2* Electric-fields effect on MBSL and SBSL intensities
Hyang-Bok Lee†, Pak-Kon Choi (Meiji Univ.)

1E1-3 Wastewater treatment with acoustic separator
Takuya Kambayashi†, Tomonori Saeki†, Ian Buchanan‡ (1Hitachi; 2Univ. of Alberta)

10:30-11:30 High power ultrasound, Piezoelectric devices I Chair: Ken-ya Hashimoto (Chiba Univ.)

1E2-1* Evaluation model of the high power characteristics considering the interaction between temperature rise and nonlinear vibration
Susumu Miyake†, Takeshi Morita (Univ. of Tokyo)

1E2-2* Torque improvement of polymer-based ultrasonic motor through optimal design of vibrator structure
Jiang Wu†, Yosuke Mizuno, Kenitaro Nakamura (Tokyo Tech.)

1E2-3* Photoacoustic imaging with PZT/PZT Sol-gel composite ultrasonic transducer fabricated on acoustic lens
Masayuki Tanabe†, Tai-Chien Wu‡, Koki Hirata†, Makiko Kobayashi†, Masahiko Nishimoto†, Che-Hua Yang‡ (1Kumamoto Univ.; 2Natl. Taipei Univ. of Tech.)

1E2-4* Investigation interaction SH-SAW with managed electroinduced domain structures
Siarhei Barsukou†, Jun Kondoh†, Sergei Khakhomov‡ (1Shizuoka Univ.; 2Gomel State Univ.)

11:30-13:00 LUNCH TIME

13:00-14:00 Measurement techniques I Chair: Oliver Wright (Hokkaido Univ.)

1E3-1 Detection of ultrasonic wave signal in clamp-on ultrasonic flowmeter for low pressure city gas
Hiroshi Nishiguchi†, Toshiyuki Sawayama†, Kouki Nagamune‡ (1Kansai Electric Power co.; 2New Sensor inc.; 3Univ. of Fukui)

1E3-2* Determination of exact gelation point and measurement of tiny elastic modulus using disk-type EMS
Taichi Hirano†, Keiji Sakai (Univ. of Tokyo)

1E3-3* A study for ultrasonic super resolution imaging using tissue harmonics
Jing Zhu†, Shuntaro Hamazumi, Yihsin Ho, Kan Okubo, Norio Tagawa (Tokyo Met. Univ.)

1E3-4 Acoustic field evaluation of adhesive-free polymer transducers used for high frequency imaging
Anowarul Habib†, Sanat Wagle, Adit Decharat, Frank Melandsr (UiT The Arctic Univ. of Norway)

14:00-14:15 Break
Piezoelectric devices II
Chair: Shoji Kakio (Univ. of Yamanashi)

14:15-15:00

1E4-1* Piezoelectric characteristic analysis of ultrasonic transmission and reception using diaphragm type PZT transducer
Yuya Ishiguro†, Jing Zhu, Tsuyoshi Okubo, Norio Tagawa (Tokyo Met. Univ.)

1E4-2 Multi-mode filter composed of single-mode SAW/BAW resonators
Yulin Huang†, Jingfu Bao, Gongbin Tang†, Yiling Wang†, Tatsuya Omori†, Ken-ya Hashimoto†
(1Univ. of Electronic Sci. and Tech. of China; 2Chiba Univ.; 3Shanghai Jiao Tong Univ.)

1E4-3 A study of temperature dependence of immunoreactions using shear horizontal surface acoustic wave immunosensors
Takashi Kogai†, Hiromi Yatsuda, Jun Kondoh† (1Japan Radio Co., Ltd.; 2Shizuoka Univ.)

15:00-15:10 Break

15:10-17:10 Poster Session
Chair: Takeshi Morita (Univ. of Tokyo)

1P1-1* Determination of elastic constants of liquid crystal polymer with orthorhombic structure
Shizuka Nakashima†, Akira Nagakubo†, Hirotsugu Ogi†, Masahiko Hiroa, Akihito Ota†
(1Osaka Univ.; 2Ueno Fine Chemicals Industry, Ltd.)

1P1-2 Study on three-port ultrasonic levitation machine with conveyance technique
Masaki Yamamoto†, Mitsutaka Hikita (Kogakuin Univ.)

1P1-3 Design of non-reciprocal acoustic waveguides by indirect bandpass transitions
Atsushi Ishikawa†, Kenji Tsuruta (Okayama Univ.)

1P1-4 Measurement of two-dimensional viscoelasticity by EMS method
Maiko Hosoda†, Keiji Sakai† (1Tokyo Denki Univ.; 2Univ. of Tokyo)

1P1-5 Propagation characteristics of the shock waves from a plane CNTs-coated optoacoustic transducer in water
Xiaofeng Fan†, Yonggeun Baek†, Kang Lyoeol Ha†, Moojoon Kim†, Jungsoon Kim†, Duckjong Kim†,
Hyun Wook Kang†, Junghwan Oh† (1Pukyong Natl. Univ.; 2Tongmyong Univ.; 3KIMM)

1P1-6* Measurement of elastic stiffness of Fe/Cr multilayer by picosecond ultrasound
Nobutaka Takeuchi†, Nobutomo Nakamura, Hirotsugu Ogi, Masahiko Hiroa (Osaka Univ.)

1P1-7 Mechanical properties of lithium-ion battery electrode
Ryo Inagaki†, Tsuyoshi Noge†, Keita Sonoda†, Koichi Onishi†, Kenta Kirimoto†, Yong Sun†
(1Kyushu Inst. of Tech.; 2Kitakyushu Natl. Coll. of Tech.)

1P1-8* Bright-field photoacoustic tomography
Nhat Quang Bui†, Junghwan Oh (Pukyong Natl. Univ.)

1P2-1* Estimation of the thickness of refractory ceramics by the impact-echo method
Seongmin Lee†, Namho Shin†, Yongnae Roh† (1Kyungpook Natl. Univ.; 2POSCO Technical Research Laboratory)

1P2-2* A method of detecting micro crack in shallow layer of solid material by harmonic component of very high-intensity aerial ultrasonic wave
Ayumu Osumi†, Masashi Ogita, Youichi Ito (Nihon Univ.)

1P2-3 Improvement of spatial resolution in low-frequency ultrasound imaging by using pulse compressed parametric sound
Hideyuki Nomura† (Univ. of Electro-Comm.)

1P2-4* A study of defect detection in metal plate using nonlinear ultrasonic waves
Makoto Fukuda†, Kazuhiko Imano (Akita Univ.)

1P2-5* Flexibility improvement of PZT/PZT Sol-Gel composite ultrasonic transducers
Koki Hirata†, Masayuki Tanabe, Masahiko Nishimoto, Makiko Kobayashi (Kumamoto Univ.)

1P2-6* A highly sensitive lamb wave transducer by immersion method with natural rubber insulator
Satoshi Obata†, Masashi Ishikawa, Hideo Nishino (Tokushima Univ.)
1P2-7 Clamp-on ultrasonic steam flowmeter using transducer with supercritical angle and damping material with high temperature endurance
Tomohito Hayashi1†, Hiroshi Sasaki1, Shuichi Umezawa, Katsuhiko Sugita2
(1Azbil Corporation.; 2Tokyo Electric Power Company Holdings)

1P2-8 High speed non-contact acoustic inspection method for civil engineering structure using multi tone burst wave
Tsuneyoshi Sugimoto1, Kazuko Sugimoto1, Nobuaki Kosuge1, Noriyuki Utagawa3, Kageyoshi Katakura1
(1Toin Univ. of Yokohama; 3Sato Kogyo Co., Ltd.; 2Meitoku Eng., Lab.)

1P2-9 Development of linear array piezoelectric transducer using Sol-Gel spray technique
Shingo Koda1, Masayuki Tanabe, Makiko Kobayashi, Masahiko Nishimoto (Kumamoto Univ.)

1P3-1 Influence of coupling with SH SAW on lateral propagation of Rayleigh SAW on 128°YX-LiNbO3
Benfeng Zhang1†2, Tao Han1, Qiaozhen Zhang1,2, Gongbin Tang1,2, Tatsuya Omori2, Ken-ya Hashimoto3†
(1Shanghai Jiao Tong Univ.; 2Chiba Univ.)

1P3-2 High-coupling leaky SAWs on LiNbO3 or LiTaO3 thin plate bonded to high-velocity substrate
Masashi Gomi1†, Takuya Kataoka, Junki Hayashi, Shoji Kakin (Univ. of Yamanashi)

1P3-3 Tunable rejection filters with ultra-wideband using SHp plate wave resonators
Michio Kadota1, Shuji Tanaka (Nagoya Inst. of Tech.; 2Waseda Univ.)

1P3-4 High electromechanical coupling of sezawa mode SAW using a polarization-inverted ScAlN film/high-velocity substrate structure
Shinji Takayanagi1†, Takahiko Yanagita2 (Nagoya Inst. of Tech.; 2Waseda Univ.)

1P3-5 Withdraw

1P4-1 Measurement of distribution of sound pressure of fundamental, subharmonic and white noise in sonochemical reactor
Yoshiyuki Asakura1†, Tam Thanh Nguyen2, Nagaya Okada1, Keiji Yasuda3 (Honda Electronics; 2Nagoya Univ.)

1P4-2 Measurement of sound pressure in the presence of cavitation bubbles
Tam Thanh Nguyen1†3, Yoshiyuki Asakura2, Nagaya Okada1, Keiji Yasuda1
(2Nagoya Univ.; 3Honda Electronics; 1Univ. of Sci., VNU-HCM)

1P4-3 Effect of hydrophone on high-intensity acoustic fields with generation of acoustic cavitation bubbles
Nagaya Okada1†, Michihisa Shibata, Shinichi Takeuchi1
(1Honda Electronics; 2Nihon Inst. of Med. Sci.; 3Toin Univ. of Yokohama)

1P4-4 Non-contact stirring of liquid in micro container using by high-intensity aerial ultrasonic waves
Taichi Urakami1†, Ayumu Osumi, Youichi Ito (Nihon Univ.)

1P4-5 Experiment and modeling to assess ultrasonic attenuation factor in molten aluminum alloy
Jeong IL Youn1†, Jung Hwan Kim1, Young Ki Lee1, Young Jig Kim1, Hoon CHO2
(1Sungkyunkwan Univ.; 2Korea Inst. of Industrial Tech.)

1P4-6 Effect of ultrasonic frequency on degassing efficiency in molten aluminum alloy
Young Ki Lee1†, Jeong IL Youn1, Young Jig Kim1, Jeong Wook Park2 (Sungkyunkwan Univ.; 2DR AXION)

1P4-7 Influence of the heat leak on the onset temperature in the straight-tube-type thermoacoustic prime mover: The temperature distribution of the thermal buffer tube
Takahiro Wada1, Shin-ichi Sakamoto, Yuichiro Orino, So Ueno, Yuma Kajiyama (Univ. of Shiga Pref.)

1P4-8 Development of a prototype step-shaped-type thermoacoustic cooling system by force driven
Kohei Egawa1, Shin-ichi Sakamoto, Yuichiro Orino, So Ueno, Yasuaki Sekimoto (Univ. of Shiga Pref.)

1P4-9 A prototype of a step-shaped-type miniature thermoacoustic prime mover of the full-length 90mm - Measurement results in oscillation temperatures and frequencies -
Shin-ichi Sakamoto1, Yuichiro Orino, Satoshi Kawamoto (Univ. of Shiga Pref.)

1P4-10 Effects of generation for work flow on the standing-wave thermoacoustic-system -Relationship between the installation position and the temperature gradient of stack-
Seiya Fukuda1†, Shin-ichi Sakamoto2, Mana Sugimoto1, Yoshiaki Watanabe1 (1Doshisha Univ.; 2Univ. of Shiga Pref.)
1P4-11* Applying stainless-mesh stacks to improve cooling performance of a thermoacoustic cooling system with diameter-expanded prime movers  
So Ueno†, Shin-ichi Sakamoto, Yuichiro Orino (Univ. of Shiga Pref.)

1P4-12* Step-type thermoacoustic system using the phase transition -Study toward the low temperature excitation-  
Sho Kawaminami†, Shin-ichi Sakamoto, Seiya Fukuda†, Yoshiaki Watanabe† (Doshisha Univ.; Univ. of Shiga Pref.)

1P5-1* Optimal design of an annular 1-3 piezocomposite High Intensity Focused Ultrasound (HIFU) transducer of a concave geometry for medical treatment  
Euna Choi, Yongrae Roh† (Kyungpook Natl. Univ.)

1P5-2* Evaluation of sound field near blade of ultrasonically activated surgical device  
Hiroki Kikuchi†, Kenji Yoshida, Ryosuke Yahagi, Tadashi Yamaguchi, Hideki Hayashi (Chiba Univ.)

1P5-3 Experimental evaluation of high intensity ultrasound source system using acoustic waveguide for calibration of hydrophone  
Shigeru Igarashi†, Takeshi Morishita, Takeyoshi Uchida, Shinichi Takeuchi (Polytechnic Univ.; Toin Univ. of Yokohama; AIST)

1P5-4 Development of coaxial ultrasonic probe for fatty liver diagnostic system based on ultrasonic velocity-change  
Makoto Hori†, Daiki Yokota†, Yuhei Aotani†, Yuta Kumagai†, Kenji Wada†, Toshiyuki Matsunaka†, Hiroyasu Morikawa†, Hiromichi Horinaka (Univ. of Osaka Pref.; Univ. of Osaka City)

1P5-5 Investigation on a method for suppression of grating lobe by controlling waveform of transmitted ultrasound  
Hiroki Fujita†, Hideyuki Hasegawa (Univ. of Toyama)

1P5-6 Study on improvement of spatial resolution in element domain for high-frame-rate ultrasound  
Hideyuki Hasegawa† (Univ. of Toyama)

1P5-7* Estimation of sound velocity distribution from time delay received at each element of ultrasonic probe  
Gen Onodera†, Hirofumi Taki, Hiroshi Kanai (Tohoku Univ.)

1P5-8* Imaging of vertebral surface using ultrasound RF data received at each element of probe for thoracic anesthesia  
Kazuki Takahashi†, Hirofumi Taki, Eiko Onishi, Masanori Yamauchi, Hiroshi Kanai (Tohoku Univ.)

1P5-9* Feature extraction from RF received waveforms for effective identification of heart wall  
Kohei Takahashi†, Hirofumi Taki, Hiroshi Kanai (Tohoku Univ.)

1P5-10* Mutual conversion between B-mode image and acoustic impedance image  
Tan Wei Chean†, Naohiro Hozumi†, Sachiko Yoshida†, Kazuto Kobayashi† (Toyohashi Univ. of Tech.; Honda Electronics)

1P5-11* Multispectral phase-contrast imaging of acoustic impedance by using interference method for puncture needle-type ultrasonography  
Seiya Ishikura†, Masasumi Yoshizawa†, Norio Tagawa†, Takasuke Iris‡  
(Tokyo Met. Coll. of Industrial Tech.; Tokyo Met. Univ.; Microsonic Co, Ltd.)

1P5-12* High-sensitivity shear wave elasticity imaging using phase-based motion magnification  
Heechul Yoon†, Stanislav Emelianov†, Emory Univ.

1P5-13* Quantitative evaluation method of differentiation process in C2C12 myoblasts using ultrasonic microscope  
Kyoichi Takanashi†, Mamoru Washiya†, Kazuki Ota†, Naohiro Hozumi†, Sachiko Yoshida†, Kazuto Kobayashi†  
(Toyohashi Univ. of Tech.; Honda Electronics)

1P5-14* Quantitative research on the effects of anticancer drugs on glia-glioma brain tumor model using ultrasonic microscope  
Thomas Tiong Kwong Soon†, Tan Wei Chean†, Kenta Takahashi†, Naohiro Hozumi†, Sachiko Yoshida†  
(Toyohashi Univ. of Tech.; Honda Electronics)

1P6-1* Nulling crosstalk with a time-reversal mirror using the Gram-Schmidt process  
Gihoon Byun†, Sehyun Oh, Jeasoo Kim (Korea Maritime and Ocean Univ.)
1P6-2 Spatial performance analysis of passive time reversal communications in time-varying channel during SAVEX15
Kang-Hoon Choi\(^1\), Sunhyo Kim\(^1\), Seongbeom Kim\(^1\), Hyoung-Choi\(^1\), Sun-Moon Kim\(^2\), Sungho Cho\(^2\)
\(^1\)(Hanyang Univ.; \(^2\)Korea Res. Inst. of Ships and Ocean Eng.; \(^3\)Korea Inst. of Ocean Sci. and Tech.)

1P6-3* Performance analysis of passive time reversal communication technique for multipath interference in shallow sea acoustic channel
Yukihiro Kida\(^1\), Mitsuyasu Deguchi, Yoshitaka Watanabe, Takuya Shimura, Hiroshi Ochi, Koji Meguro (JAMSTEC)

1P6-4* At-sea experiment of underwater acoustic communication with a prototype of autonomous surface vehicle
Mitsuyasu Deguchi\(^1\), Yukihiro Kida, Koji Meguro, Yoshitaka Watanabe, Takuya Shimura, Hiroshi Ochi (JAMSTEC)

1P6-5 Comparison of adaptive algorithm on the equalizer for underwater acoustic communication in shallow water
Ming Chuai\(^1\), Kyu Chil Park, Jong Rak Yoon (Pukyong Natl. Univ.)

1P6-6 Underwater communication using acoustic particle velocities
Sunhyo Kim\(^1\), Jee Woong Choi (Hanyang Univ.)

1P6-7 Performance of block interleaved multi carrier modulation in underwater fading channel
Jihyun Park\(^1\), Minjae Bae, Jongju Kim, Kyu Chil Park, Jong Rak Yoon (Pukyong Natl. Univ.)

1P6-8 Acoustic channel characterization in shallow water acoustic communication
Jongjo Kim, Jihyun Park, Minjae Bae, Jong Rak Yoon\(^1\) (Pukyong Natl. Univ.)

1P6-9 Harbor demonstration of underwater acoustic communication using doppler-resilient orthogonal signal division multiplexing
Tadashi Ebihara\(^1\), Geert Leus\(^2\), Hanako Ogasawara\(^1\) (\(^1\)Univ. of Tsukuba; \(^2\)TU Delft; \(^3\)Natl. Defense Academy)

1P6-10 Performance of carrier frequency variations on the demodulation in underwater communication system
Kyu Chil Park\(^1\), Jihyun Park, Jong Rak Yoon (Pukyong Natl. Univ.)

17:10-18:00 Organizing Committee Meeting (Oral presentation Hall)

Thursday, November 17

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<td>9:30-11:30</td>
<td>Poster Session</td>
<td>Naotaka Nitta (AIST)</td>
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<td>2P1-1*</td>
<td>High temperature properties of PbTiO(<em>3) / Ba(</em>{0.7})Sr(_{0.3})TiO(_3)</td>
<td>Kazuho Kiyofuji(^1), Keisuke Kimoto, Makiko Kobayashi (Kumamoto Univ.)</td>
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<td>2P1-2*</td>
<td>Piezoelectric stiffening in the thickness direction of c-plane ZnO single crystal measured by Brillouin scattering</td>
<td>Shota Tomita(^1), Takahiko Yanagitani(^1), Shinji Takayanagi(^2), Mami Matsukawa(^1) ((^1)Doshisha Univ.; (^2)Waseda Univ.; (^3)Nagoya Inst. Tech.)</td>
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<tr>
<td>2P1-3</td>
<td>Wave-propagation properties of alpha and beta lanthanum studied by ab-initio calculations</td>
<td>Akira Nagakubo(^1), Hirotsugu Ogi, Koichi Kusakabe, Masahiko Hirao (Osaka Univ.)</td>
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<tr>
<td>2P1-4*</td>
<td>Measurements of ultrasonic surface wave velocities in silicon crystals and its comparison with FE analysis</td>
<td>Hye Soo Park(^1), Hyun-Seok Lee, Hyeon-Soo Lee, Hak-Beom Kim, Young H. Kim (Korea Sci. Academy of KAIST)</td>
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<tr>
<td>2P1-5</td>
<td>Low frequency limit characteristics in complex series dynamics and its advantages from engineering point of view</td>
<td>Michio Ohki(^1) (Natl. Defense Academy)</td>
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<td>2P1-6</td>
<td>Suppressing diffraction of surface acoustic waves using phononic lens</td>
<td>Yuan-Hai Yu(^1), Jia-Hog Sun (Chang Gung Univ.)</td>
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<td>2P1-7</td>
<td>Ultrasound scattering studies on pickering emulsion</td>
<td>Nguyen Thao Tran(^1), Hideyuki Nakanishi, Tomohisa Norisuye, Qui Tran-Cong-Miyata (Kyoto Inst. of Tech.)</td>
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**2P1-8 Imaging surface acoustic wave propagation on crystal spheres**

Paul Otsuka¹, Osamu Matsuda¹, Motonobu Tomoda¹, Istvan Veres², Oliver Wright³ (¹Hokkaido Univ.; ²RECENDT)

**2P2-1* Study about accuracy of position and velocity measurement by multi-channel pulse compression using M-sequence modulated ultrasound**

Kota Yamanaka¹, Shinnosuke Hirata, Hiroyuki Hachiya (Tokyo Tech.)

**2P2-2* Measurement of love wave propagation characteristics along elastic substrate and viscoelastic surface layer**

Yusuke Chiba¹, Tadashi Ebihara, Koichi Mizutani, Naoto Wakatsuki (Univ. of Tsukuba)

**2P2-3 Nondestructive evaluation of surface defects on flexible circuits using high frequency focused polymer transducers**

Sanat Wagle¹, Anowarul Habib, Frank Melandsø (UiT The Arctic Univ. of Norway)

**2P2-4* Dynamics of carbon-black suspension probed by dynamic ultrasound scattering techniques**

Motoki Ozaki¹, Tomohisa Norisuye, Hideyuki Nakanishi, Qui Tran-Cong-Miyata (Kyoto Inst. of Tech.)

**2P2-5* Acoustical positioning method using transponders without clock synchronization**

Hirokazu Iwaya¹, Koichi Mizutani, Tadashi Ebihara, Naoto Wakatsuki (Univ. of Tsukuba)

**2P2-6* Effects of curvatures and torsions on dispersion property of guided waves propagating in a helical structure obtained by a semi-analytical finite element method**

Kosuke Kanda¹, Toshihiko Sugiura (Keio Univ.)

**2P2-7 Visualization of the cavitation bubble cloud produced in a clinical shock wave field using micro-pulse LED light**

Gwansuk Kang¹, Min Joo Choi (Jeju Natl. Univ.)

**2P2-8* Effect of intermediate material at contact surface of bone-conducted sound transducer on propagation characteristics**

Satoki Ogiso¹, Koichi Mizutani, Naoto Wakatsuki, Keiichi Zempo, Yuka Maeda (Univ. of Tsukuba)

**2P2-9* Piezomagnetic effect of steel bars in cement composite structures**

Miki Uehara¹, Masafumi Kuroda¹, Hisato Yamada¹, Yutaka Kawano¹,², Kenji Ikushima¹ (¹Tokyo Univ. of A&T; ²IHI Inspection & Instrumentation Co., Ltd.)

**2P2-10* Estimation of defect position and size in billet using time-of-flight deviation of ultrasonic bottom echo**

Ryuusuke Miyamoto¹, Koichi Mizutani, Tadashi Ebihara, Naoto Wakatsuki (Univ. of Tsukuba)

**2P3-1 Energy trapping of quartz resonators with pillar phononic crystals**

Yung-Yu Chen¹, Yan-Ruei Lin¹, Shih-Yung Pao² (¹Tatung Univ.; ²TXC Corp.)

**2P3-2 Variation in resonance characteristics of a thickness-shear trapped-energy vibrator by gradual dipping in liquids - For the purpose of liquid-level sensing -**

Ken Yamada¹, Yuki Kunii (Tohoku Gakuin Univ.)

**2P3-3* Piezoelectric probe for measurement of longitudinal and shear components of elastic wave**

Masafumi Aoyanagi¹, Naoto Wakatsuki, Koichi Mizutani, Tadashi Ebihara (Univ. of Tsukuba)

**2P3-4 Design of an ultrasonic fingerprint sensor made of 1-3 piezocomposites by the finite element method**

Haejune Park, Yongrae Roh¹ (Kyungpook Natl. Univ.)

**2P3-5* Evaluation of piezoelectric Ta₂O₅ thin films deposited on SrTiO₃ substrates**

Yu Sugaya¹, Shoji Kakio (Univ. of Yamanashi)

**2P3-6 Size distribution of nano particles in the droplets ultrasonic atomized from Al₂O₃ suspension**

Jungsoon Kim¹, Jihyang Kim², Jiyeong Yeom², Kang Lyool Ha², Moojoon Kim² (¹Tongmyong Univ.; ²Pukyong Natl. Univ.)

**2P4-1 The effect of gas sparging on sonochemical oxidation reactions**

Hyeon-jae Lee, Wontae Lee, Younggyu Son¹ (Kumoh Natl. Inst. of Tech.)

**2P4-2* Viscosity dependences of multibubble sonoluminescence in aqueous solutions of glycerol**

Munenori Ban¹, Pak-Kon Choi (Meiji Univ.)
2P4-3 Rate control of sono-oxidation of KI by adding NaHCO₃
Hisashi Harada† (Meisei Univ.)

2P4-4 Enhancement of oxidation reaction of 2-deoxyribose by ultrasound
Soojeong Shim†, Young H. Kim (Korea Sci. Academy of KAIST)

2P4-5* Productivity of reactive oxygen species by low-intensity focused ultrasound irradiation to titanium dioxide particles
Keisuke Hashimura†, Akio Kaya, Masaki Misawa, Yoshihiko Koseki, Kiyoshi Yoshinaka, Naotaka Nitta (AIST)

2P4-6* A study on power accumulator of surface acoustic wave by using PZT substrate and its application to AU foil joining
Hiroki Nakamura†, Yuji Watanabe†, Kengo Naruse† (Takushoku Univ.; Seidensha Electronics Co., Ltd.)

2P4-7* Surface hardness monitoring of object during hardening by high-intensity aerial ultrasonic waves
Hajime Fujiwara†, Ayumu Osumi, Youichi Ito (Nihon Univ.)

2P4-8* An analysis of ultrasonomically rotating droplet with moving particle semi-implicit and distributed point source method in a rotational coordinate
Yuji Wada†, Kohei Yuge†, Hiroki Tanaka†, Kentaro Nakamura† (Seikei Univ.; Tokyo Tech.)

2P4-9* Study of a liquid droplet ejection device using multi-actuator
Kei Ozaki†, Kengo Ando, Yoshihiro Ono, Akira Yasuda, Chiaki Tanuma (Hosei. Univ.)

2P4-10* Examination of the inner rotor type coiled stator ultrasound motor using wire acoustic waveguide
Choyu Uehara†, Keisuke Kurita†, Seiya Ozeki², Shinichi Takeuchi† (Toin Univ. of Yokohama; Tsukuba International Univ.)

2P4-11* Examination of the outer rotor type coiled stator ultrasound for intravascular
Keisuke Kurita†, Choyu Uehara†, Seiya Ozeki², Shinichi Takeuchi† (Toin Univ. of Yokohama; Tsukuba International Univ.)

2P4-12* Dynamic resonant frequency controllable system for ultrasonic transducer
Hiroki Yokozawa†, Jens Twiefel², Michael Weinstein², Takeshi Morita† (Univ. of Tokyo; Leibniz Univ. Hannover)

2P5-1* Long monitoring of portal vein with 3D ultrasound: Image tracking, respiratory motion analysis and diameter measurement
Iori Terada†, Yuki Togoe, Tomohiro Ueno, Koichi Ishizu, Yasutomo Fujii, Tsuyoshi Shiina, Naozo Sugimoto (Kyoto Univ.)

2P5-2* Image analysis for classification of stools and gases in large intestine
Kanako Tomihara†, Masayuki Tanabe†, Junko Yotsuya†, Masahiko Nishimoto† (Kumamoto Univ.; Fukui Univ.)

2P5-3* A study on mechanism of temporal variation in ultrasonic integrated backscatter from human heart wall
Yumi Tobinai†, Hirofumi Taki, Hiroshi Kanai (Tohoku Univ.)

2P5-4* Basic study on USCT for brain imaging
Yuki Hayashi†, Hirofumi Nakamura, Xiaolei Qu, Takashi Azuma, Shu Takagi (Univ. of Tokyo)

2P5-5* Total calibration of position, response, and directivity of transducer elements for precise imaging with plane-wave based ultrasound computed tomography
Takahide Terada†, Kazuhiro Yamanaka, Atsuro Suzuki, Yushi Tsubota, Wenjing Wu, Ken-ichi Kawabata (Hitachi)

2P5-6* In Vivo measurement of propagation of myocardial contraction along swine heart wall
Yuya Matsuno†, Hirofumi Taki, Hiroaki Yamamoto, Michinori Hirano, Susumu Morosawa, Hiroaki Shimokawa, Hiroshi Kanai (Tohoku Univ.)

2P5-7 Relative pressure imaging of the left ventricle by ultrasonic vector flow mapping
Tomohiko Tanaka†, Takashi Okada, Tomohide Nishiyama, Yoshinori Seki (Hitachi)

2P5-8* Thin catheter bending to the perpendicular direction of ultrasonic propagation using 2-dimensional array transducer
Toshiya Suzuki†, Takashi Mochizuki, Hidetaka Ushimizu, Shinya Miyazawa, Nobuhiro Tsurui, Kohji Masuda (Tokyo Univ. of A&T)

2P5-9 Forward propagated shear wave imaging using CD SWI elastography
Yoshiki Yamakoshi†, Mayuko Yamazaki, Takahiro Sato, Ren Koda, Naoki Sunaguchi (Gunma Univ.)
2P5-10* Ex-Vivo tumor characterization using the multimodal ARFI imaging system
Jihun Kim¹, Jae Youn Hwang (Daegu Gyeongbuk Inst. of Sci. and Tech.)

2P5-11* Velocity measurement of shear-wave 2D propagation using high-speed localized motion imaging
Shun Yoshimura², Takashi Azuma¹, Keisuke Fujiwara¹, Hideki Takeuchi¹, Mika Seki¹, Kazunori Itani¹, Kiyoshi Yoshinaka¹, Shu Takagi¹ (Univ. of Tokyo; Hitachi; AIST)

2P5-12* Fabrication of bone phantoms by 3D printers and the measurement of ultrasonic scattering
Shohei Nakata¹, Chikako Kamiyama, Gen Watanabe, Masahiro Ohno (Chiba Inst. of Tech.)

2P5-13* Influence of abnormal collagen cross-links on ultrasonic velocity in bone
Ryohei Ueda¹, Mami Kawase, Mami Matsukawa (Doshisha Univ.)

2P5-14 Experimental observation of piezoelectric effect in cancellous bone under ultrasound irradiation
Atsushi Hosokawa¹ (Natl. Inst. Tech., Akashi Coll.)

2P5-15* Ultrasonically induced electric potentials in extracted collagen from cortical bone
Shunki Mori¹, Sayaka Matsukawa¹, Mami Kawase¹, Shinji Takayanagi², Mami Matsukawa¹ (Doshisha Univ.; Nagoya Inst. Tech.; Univ. of Tokyo; Waseda Univ.)

2P5-16* Evaluation of piezoelectricity in bone by ultrasound irradiation
Sayaka Matsukawa¹, Shunki Mori¹, Daisuke Koyama¹, Shinji Takayanagi², Katsunori Mizuno³, Takahiko Yanagita², Mami Matsukawa¹ (Doshisha Univ.; Nagoya Inst. Tech.; Univ. of Tokyo; Waseda Univ.)

2P6-1 Acoustic propagation in shallow water by the effective depth approximation
Seongwook Lee¹ (KIOST)

2P6-2* Effects of water temperature inversion layer on underwater sound propagation in the East China Sea
Seong Hyeon Kim¹, Byoung-Nam Kim², Eung Kim¹, Bok Kyoung Choi¹ (Maritime Safety Research Center; Korea Inst. of Ocean Sci. & Tech.)

2P6-3 Sediment acoustic characteristic measurement at hashirimizu port for study of sound propagation at very shallow water
Hanako Ogasawara¹, Kazuyoshi Mori (Natl. Defense Academy)

2P6-4* Array gain variation of bulb signals in vertically directional noise field
Dong-Gyun Han¹, Su-Uk Son¹, Young Geul Yoon¹, Jee Woong Choi¹, Joung-Soo Park² (Hanyang Univ.; Agency for Defense Dev.)

2P6-5* Weighted time reversal combining in snapping shrimp noise
Hyeonsu Kim¹, Jongpil Seo, Jiwoong Kang, Jaehak Chung (Inha Univ.)

2P6-6* Preliminary statistical analysis of transient noise observed at several coastal waters in Japan
Keiichi Shikata¹, Hiroyuki Kawahara, Kazuyoshi Mori, Hanako Ogasawara (Natl. Defense Academy)

11:30-13:00 LUNCH TIME

13:00-13:50 Plenary Talk I Chair: Kyuichi Yasui (AIST)

2PL Sonoluminescence and the acoustic cavitation
Pak-Kon Choi¹ (Meiji Univ.)

2E1-1 Sound and low intensity pulse ultrasound stimulation for aquaculture oncorhynchus masou
Yohachi (John) Yamashita¹, Takuya Kawakami, Xianqiang Xu, Tomoaki Karaki (Toyama Pref. Univ.)

2E1-2 MIMO underwater acoustic communication using adaptive time reversal in deep ocean
Takuya Shimura¹, Yukihiro Kida, Mitsuyasu Deguchi, Hiroshi Ochi (JAMSTEC)

2E1-3* Optimal design of a sparse array to simulate a fully dense underwater planar array transducer for underwater vehicles
Muhammad Shakeel Afzal, Yongrae Roh¹ (Kyungpook Natl. Univ.)
2E1-4 High-sensitivity measurement method of bubble cavitation signal generated from infinitesimal amount of microbubbles
Ren Koda, Takumu Origasa, Toshitaka Nakajima, Yoshiki Yamakoshi (Gunma Univ.)

2E1-5* Evaluation of frequency-dependent ultrasound attenuation in transparent medium using focused shadowgraph technique
Yukina Iijima, Nobuki Kudo (Hokkaido Univ.)

2E1-6* Computational cost reduction by avoiding ray-link iteration of bent-ray method for sound speed image reconstruction in ultrasound computed tomography
Xiaolei Qu, Takashi Azuma, Hongxiang Lin, Hirofumi Nakamura, Satoshi Tamano, Shu Takagi, Ichiro Sakuma, Shin-ichiro Umemura, Yoichiro Matsumoto (Univ. of Tokyo; Tohoku Univ.)

15:30-15:45 Break

15:45-17:15 Biomedical ultrasound II Chair: Tsuyoshi Shiina (Kyoto Univ.)

2E2-1 Accuracy improvement of multimodal measurement of speed of sound based on image processing
Naotaka Nitta, Akio Kaya, Masaki Misawa, Koji Hyodo, Tomokazu Numano (AIST; Tokyo Met. Univ.)

2E2-2* Efficient phase velocity estimation of ultrasonic guided wave propagating in cortical bone using adaptive beamforming technique
Shigeaki Okumura, Vu-Hieu Nguyen, Hirofumi Taki, Toru Sato (Kyoto Univ.; Univ. Paris-Est; Tohoku Univ.)

2E2-3 Ex Vivo assessment of porcine aortic stiffness based on leaky lamb-wave dispersion analysis of shear wave propagation
Jun-keun Jang, Kengo Kondo, Takeshi Namita, Makoto Yamakawa, Tsuyoshi Shiina (Kyoto Univ.)

2E2-4 Ultrasound computed tomography for orthopedic application
Takashi Azuma, Xiaolei Qu (Univ. of Tokyo)

2E2-5* Prediction of ultrasonically induced thermal coagulation from the distribution of absorption of pulsed high-intensity focused ultrasound
Ryosuke Iwasaki, Ryo Takagi, Kentaro Tomiyasu, Shin Yoshizawa, Shin-ichiro Umemura (Tohoku Univ.)

2E2-6* Subcellular observation of C2C12 myoblast differentiation using ultrasonic microscope
Mamoru Washiya, Kyoichi Takanashi, Kazuki Ota, Naohiro Hozumi, Kazuto Kobayashi, Sachiko Yoshida (Toyohashi Univ. of Tech.; Honda Electronics)

17:20-17:40 Awards Ceremony

17:40-18:00 Break

18:00-20:00 Banquet

Friday, November 18

9:30-11:30 Poster Session Chair: Naoto Wakatsuki (Univ. of Tsukuba)

3P1-1* FEA of lamb wave in anisotropic plate
Donghyun Kim, Young H. Kim (Korea Sci. Academy of KAIST)

3P1-2* Design of composite-structured acoustic metasurface toward wideband energy harvesting
Yuta Kobayashi, Kenji Tsuruta, Atsushi Ishikawa (Okayama Univ.)

3P1-3* Simulation study of axial ultrasound propagation in heterogeneous cortical bone model
Koki Takano, Yoshihi Nagatani, Mami Matsukawa (Doshisha Univ.; Kobe City Coll. Tech.)

3P1-4* Local ultrasonic wave velocities in articular cartilage measured by micro-Brillouin scattering technique
Mami Kawase, Yoshiaki Shibagaki, Shota Tomita, Shunki Mori, Masahiko Kawabe, Mami Matsukawa (Doshisha Univ.)
3P1-5 Temperature dependence of acoustic property for Ca$_3$Ta(Ga,Al)$_3$Si$_2$O$_14$ single crystals
Yuji Ohashi$^1$, Mototaka Arakawa$^1$, Yuui Yokota$^1$, Yasuhiro Shoji$^1$, Akihiro Yamaji$^1$
Shunsuke Kurosawa$^2$, Kei Kamada$^{1,2}$, Akira Yoshikawa$^{1,2}$ (Tohoku Univ.; $^2$C&A)

3P1-6* Evaluation of acoustic properties of multilayer graphene sheet by ultrasonic microscopy
Ryosuke Kaneko$^1$, Michio Kadota$^1$, Masamitsu Tachibana$^1$, Mutsuaki Murakami$^2$
Jun-ichi Kushibiki$^1$, Yuji Ohashi$^1$, Shuji Tanaka$^1$ (Tohoku Univ.; $^2$Kaneka Corp.)

3P1-7 Piezoelectric photothermal detection of the mini-band edge energies of strain-balanced InGaAs/GaAsP superlattice structures
Tetsuo Ikari$^1$, Atsuhiko Fukuyama$^1$, Tsubasa Nakamura$^1$, Masakazu Sugiyama$^1$, Yoshikai Nakano$^1$
($^1$Univ. Miyazaki; $^2$Univ. of Tokyo)

3P2-1 Detection of sleeping and rising states in care environment using sound at upper vocal register of 18-20 kHz installation in sensor network
Mitsutaka Hikita$^1$, Yukari Kaneta (Kogakuin Univ.)

3P2-2* Ultrasound scattering studies on the aqueous suspension of thermo-sensitive gel particles
Takehisa Inoue$^1$, Tomohisa Noriesuye, Hideyuki Nakanishi, Qui Tran-Cong-Miyata (Kyoto Inst. of Tech.)

3P2-3 Ultrasound scattering studies on silica micro-particle suspensions
Tomohisa Noriesuye$^1$, Hayato MORI, Hideyuki Nakanishi, Qui Tran-Cong-Miyata (Kyoto Inst. of Tech.)

3P2-4* Long range acoustic sensing using super-directivity speaker and super-resolution signal processing with pulse compression technique
Yuya Asakura$^1$, Kan Okubo, Norio Tagawa (Tokyo Met. Univ.)

3P2-5 Room-temperature poling of CaBi$_4$Ti$_4$O$_{15}$/Pb(Zr,Ti)O$_3$ sol-gel composite films by pulse discharge
Hikaru Koyama$^1$, Taiga Kibe, Takao Namihira, Makiko Kobayashi (Kumamoto Univ.)

3P2-6* A comparison examination on treatment of interface between different media for sound field simulation using CIP method
Akihiro Fukuda$^1$, Kan Okubo$^1$, Takao Tsuchiya$^1$ ($^1$Tokyo Met. Univ.; $^2$Doshisha Univ.)

3P2-7 Evaluation of abdominal sound tomographic image using regularized ART algorithm
Akira Yamada$^1$, Kensuke Kawai, Tomohiro Kurokawa (Tokyo Univ. of A&T)

3P2-8* Simulation of optical propagation for phase retrieval in shadowgraph of ultrasonic field
Hiroki Hanayama$^1$, Takuya Nakamura, Ryo Takagi, Shin Yoshizawa, Shin-ichiro Umemura (Tohoku Univ.)

3P2-9 Moisture adsorption desorption characteristics of stainless steel tubing measured by ball surface acoustic wave trace moisture analyzer
Toshihiro Tsuji$^1$, Shingo Akao$^{1,2}$, Toru Oizumi$^1$, Nobuo Takeda$^1$, Yusuke Tsukahara$^1$, Kazushi Yamanaka$^1$
($^1$Tohoku Univ.; $^2$Ball Wave Inc.)

3P2-10* Fabrication of high-temperature flexible ultrasonic transducer by printing method
Yuto Yonemura$^1$, Kazuho Kiyofuji, Taiga Kibe, Makiko Kobayashi (Kumamoto Univ.)

3P3-1 Three-level inverter system based on multiplex transmission using surface acoustic wave filters
Keita Kubo$^1$, Nanae Kanai$^1$, Fumiya Kobayashi$^1$, Shigeo Goka$^1$, Keiji Wada$^1$, Shoji Kakio$^1$
($^1$Tokyo Met. Univ.; $^2$Univ. of Yamanashi)

3P3-2 Transportation control of microfluidic particles using mode switching between surface acoustic waves and plate waves
Jin-Chen Hsu$^1$, Yeo-Wei Huang, Chih-Hsun Hsu (Natl. Yunlin Univ.)

3P3-3 Study on the indenter shape of vibratory tactile sensor
Subaru Kudo$^1$ (Ishinomaki Senshu Univ.)

3P3-4* Real-time monitoring of methanol concentration using shear horizontal surface acoustic wave sensor
Kyosuke Tada$^1$, Takuya Nozawa, Jun Kondoh (Shizuoka Univ.)

3P3-5 High-frequency QCM biosensor fabricated with PDMS polymer process
Fumihito Kato$^1$, Yukinari Kodaka$^1$, Yuuki Sakai$^1$, Hirokazu Noguchi$^1$, Hirotugu Ogii$^2$, Masahiko Hirao$^2$
($^1$Nippon Inst. of Tech.; $^2$Osaka Univ.)
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<td>Estimation of liquid properties by inverse problem analysis based on shear horizontal surface acoustic wave sensor responses</td>
<td>Kento Ueda¹, Jun Kondoh (Shizuoka Univ.)</td>
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<td>3P4-1</td>
<td>Influence of ultrasonic irradiation condition on aggregation reaction of insulin</td>
<td>Daisuke Nishioka¹, Kichitaro Nakajima, Hirotsugu Ogi, Masahiko Hirao, Masatomo So, Yuji Goto (Osaka Univ.)</td>
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<td>The desulphurization process of bitumen using ultrasound</td>
<td>Wan Mohamad Ikhwani bin Wan Kamal¹, Hirokazu Okawa, Takahiro Kato, Katsuyasu Sugawara (Akita Univ.)</td>
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<td>Dukyoung Lee¹, Wontae Lee, Younggyu Son (Kumoh Natl. Inst. of Tech.)</td>
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<td>Utilization of ultrasonic atomization for dust control in underground mining</td>
<td>Hirokazu Okawa¹, Kentaro Nishi, Youhei Kawamura, Takahiro Kato, Katsuyasu Sugawara (Akita Univ.)</td>
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<td>Effect of ultrasound irradiation on size and morphology of scorodite particles synthesized under different acidic conditions</td>
<td>Yuya Kitamura¹, Hirokazu Okawa, Takahiro Kato, Katsuyasu Sugawara (Akita Univ.)</td>
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<td>3P4-6</td>
<td>Piezoelectric transducer design for particle excitation hydraulic control valve</td>
<td>Takahiro Ukida¹, Koichi Suzumori¹, Hiroyuki Nabue¹, Takefumi Kanda² (¹Tokyo Tech.; ²Okayama Univ.)</td>
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<td>Evaluation of a spraying state using a nozzle oscillated by a torsional transducer</td>
<td>Takefumi Kanda¹, Seren Miyake¹, Shoki Ofuji¹, Shunsuke Tsuyuki¹, Shin-ichiro Kawasaki¹ (¹Okayama Univ.; ²AIST)</td>
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<td>Ultrasonic welding by using planar vibration locus of longitudinal-torsional vibration source consisting of two transducers</td>
<td>Takuya Asami¹, Yusuke Higuchi, Hikaru Miura (Nihon Univ.)</td>
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<td>Ultrasonic welding of copper plate and aluminum plate by complex vibration</td>
<td>Yusuke Higuchi¹, Takuya Asami, Hikaru Miura (Nihon Univ.)</td>
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<td>3P4-11</td>
<td>Study of rectangular vibrating plate size of aerial ultrasonic source combined with rigid wall</td>
<td>Ryo Sato¹, Takuya Asami, Hikaru Miura (Nihon Univ.)</td>
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<td>3P5-1</td>
<td>Application of organic IR788-loaded sIPN dyes for photoacoustic imaging</td>
<td>Van Phuc Nguyen¹, Hyejin Kim, Mingyoeng Kang, Minsoek Kwak, Hyun Wook Kang (Pukyong Natl. Univ.)</td>
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<td>3P5-2</td>
<td>Morphological observation of the HT-22 cells in a culture well exposed to ultrasound</td>
<td>Tsengel Bayarsaikhan¹, Gwanskang Kang, Su-Yong Eun, Min Joo Choi (Jeju Natl. Univ.)</td>
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<td>Quantitative investigations on thermal response of adipose tissue to focused ultrasonic energy</td>
<td>Han Jae Pyo³, Suhyun Park¹, Jae Hyun Jung¹, Sung Min Kim³, Hyun Wook Kang³ (³Pukyong Natl. Univ.; ³Univ. of Texas at Austin; ³Bluecore Company)</td>
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<td>Experimental study on the pressure wave propagation in tubes mimicking stenosed vessels</td>
<td>Shimpei Ono¹, Mami Matsukawa¹, Pierre-Yves Lagree² (¹Doshisha Univ.; ²Université Pierre et Marie Curie)</td>
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<td>Wall shear stress measurement method based on novel flow model near vascular wall in echography</td>
<td>Motochika Shimizu¹, Tomohiko Tanaka, Takashi Okada, Yoshinori Seki, Tomohide Nishiyama (Hitachi)</td>
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<td>Fluid flow measurement for diagnosis of ventricular shunt malfunction using nonlinear response of microbubbles in the contrast-enhanced ultrasound imaging</td>
<td>Suhyun Park¹, Heechul Yoon¹, Stanislav Emelianov², Salavat Aglyamov¹ (¹Univ. of Texas at Austin; ²Georgia Inst. of Tech; ³Emory Univ.)</td>
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<td>Development of sensor system using quartz crystal microbalance for detecting nano- and microbubbles</td>
<td>Kenji Yoshida¹, Yasuhiro Yokoi², Yoshiaki Watanabe² (¹Chiba Univ.; ²Doshisha Univ.)</td>
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<td>Riki Oitate¹, Akie Shimomura¹, Hikaru Wada¹, Takashi Mochizuki¹, Kohji Masuda¹, Yusuke Oda², Ryo Suzuki², Kazuo Manuyama² (¹Tokyo Univ. of A&amp;T; ²Teikyo Univ.)</td>
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3P5-9* Study of induction method of nanobubbles using frequency response analysis of ultrasound to verify with florescent observation
Hikaru Wada\textsuperscript{1}, Aska Furutani\textsuperscript{1}, Riki Oitate\textsuperscript{1}, Takashi Mochizuki\textsuperscript{1}, Kohji Masuda\textsuperscript{1}, Johan Unga\textsuperscript{2}, Yusuke Oda\textsuperscript{2}, Ryo Suzuki\textsuperscript{2}, Kazuo Maruyama\textsuperscript{2} (\textsuperscript{1}Tokyo Univ. of A&T; \textsuperscript{2}Teikyo Univ.)

3P5-10* Two-dimensional microbubble manipulation by mechanically controlled ultrasound focus
Hironobu Matsuzaki\textsuperscript{1}, Taichi Osaki\textsuperscript{1}, Kazuhiro Inoue\textsuperscript{1}, Mitsuhisa Ichiyamagi\textsuperscript{1}, Takashi Azuma\textsuperscript{1}, Shu Takagi\textsuperscript{1} (\textsuperscript{1}Univ. of Tokyo; \textsuperscript{2}Sophia Univ.)

3P5-11* Simultaneous high-speed optical and acoustic observation of cavitation bubbles generated in biological tissue
Kai Suzuki\textsuperscript{1}, Ryosuke Iwasaki, Ryo Takagi, Shin Yoshizawa, Shin-ichiro Umemura (Tohoku Univ.)

3P5-12 Study on ultrasonic monitoring using 1.5 dimensional ultrasound phased array in US-guided high-intensity focused ultrasound treatment
Ryo Takagi\textsuperscript{1}, Ryosuke Iwasaki, Kentaro Tomiyasu, Shin Yoshizawa, Shin-ichiro Umemura (Tohoku Univ.)

3P5-13* Study on control of treatment size in bubble-enhanced high-intensity focused ultrasound using radio-frequency echo signal
Kentaro Tomiyasu\textsuperscript{1}, Ryo Takagi, Ryosuke Iwasaki, Shin Yoshizawa, Shin-ichiro Umemura (Tohoku Univ.)

3P5-14 Improvement of the power efficiency by direct driving for HIFU transducer
Hideki Takeuchi\textsuperscript{1}, Takashi Azuma\textsuperscript{1}, Kiyoshi Yoshinaka\textsuperscript{2}, Shu Takagi\textsuperscript{1}, Ichiro Sakuma\textsuperscript{1} (\textsuperscript{1}Univ. of Tokyo; \textsuperscript{2}AIST)

3P5-15 Multifunctional pulse generator for high-intensity focused ultrasound system
Satoshi Tamano\textsuperscript{1,2}, Shin Yoshizawa\textsuperscript{1}, Shin-Ichiro Umemura\textsuperscript{1} (\textsuperscript{1}Tohoku Univ.; \textsuperscript{2}Hitachi)

3P6-1 Experimental analysis of underwater acoustic source localization using closely spaced hydrophone pairs
Min Seop Sim\textsuperscript{1}, Byoung-Nam Kim\textsuperscript{1}, Eung Kim\textsuperscript{1}, Bok Kyoung Choi\textsuperscript{1}, Kyun Kyung Lee\textsuperscript{1} (\textsuperscript{1}Korea Inst. of Ocean Sci. and Tech.; \textsuperscript{2}Kyungpook Natl. Univ.)

3P6-2 Various applications of acoustic data to deep-seabed mineral deposits
Jongmin Joo\textsuperscript{1,2}, Jee Woong Choi\textsuperscript{2}, Youngtak Ko\textsuperscript{1}, Jonguk Kim\textsuperscript{1}, Sang Joon Pak\textsuperscript{1}, Michael Chandler\textsuperscript{2}, Seung Kyu Son\textsuperscript{1}, Kyeong-Young Lee\textsuperscript{1}, Sang-Bum Chi\textsuperscript{1} (\textsuperscript{1}Hanyang Univ.; \textsuperscript{2}Korea Inst. of Ocean & Tech.)

3P6-3* Analysis of the crosstalk in an underwater planar array transducer using the equivalent circuit method
Seonghun Pyo, Yongrae Roh (Kyungpook Natl. Univ.)

3P6-4* Detection of shellfish in the sediment using acoustic coring system with 1-MHz focus probe
Hiroki Suganuma\textsuperscript{1}, Katsunori Mizuno\textsuperscript{1}, Akira Asada\textsuperscript{1}, Masumi Yamamuro\textsuperscript{2}, Yohei Uehara\textsuperscript{1}, Kazutoshi Okamoto\textsuperscript{1} (\textsuperscript{1}Korea Inst. of Ocean Sci. and Tech.; \textsuperscript{2}Shizuoka Pref. Res. Inst. of Fishery)

3P6-5* Ultrasonic target ranging in water by using sensitivity compensated signal and time reversal method
Dai Chimura\textsuperscript{1}, Ryo Toh, Seiichi Motooka (Chiba Inst. of Tech.)

3P6-6 Numerical analysis for estimating scattered waveform from complex-shaped object in water
Shunichi Fuji\textsuperscript{1}, Takenobu Tsuchiya, Hironori Mori, Nobuyuki Endoh (Kanagawa Univ.)

3P6-7* A contour tracking method for underwater targets tracking
Lixin Liu\textsuperscript{1,2,3}, Hongyu Bian\textsuperscript{2}, Wen Xu\textsuperscript{1}, Shin-ichi Yagi\textsuperscript{1} (\textsuperscript{1}Chinese Academy of Sci.; \textsuperscript{2}Harbin Eng. Univ.; \textsuperscript{3}Meisei Univ.)

11:30-13:00 LUNCH TIME

13:00-13:50 Plenary Talk II Chair: Kang Lyeol Ha (Pukyong Natl. Univ.)

3PL Robust control of sound field in an ocean waveguide
Jeasoo Kim\textsuperscript{1}, Gihoon Byun (Korea Maritime and Ocean Univ.)

13:50-14:00 Break
14:00-15:30 Physical acoustics, acousto-optics  Chair: Hirotsugu Ogi (Osaka Univ.)

3E1-1* A fundamental study on measurement of elastic properties in compacted bentonite by ultrasonic velocity measurement
Shun Kimura1†, Kazumi Kitayama1, Kazushi Kimoto2, Katsuyuki Kawamura2, Hiroshige Kikura1
(1Tokyo Tech.; 2Okayama Univ.)

3E1-2* Monitoring of carrier dynamics in GaN during disappearance of piezoelectricity by resonant ultrasound spectroscopy
Kanta Adachi†, Hirotsugu Ogi, Akira Nagakubo, Nobutomo Nakamura, Masahiko Hirao, Mamoru Imade, Masashi Yoshimura, Yusuke Mori (Osaka Univ.)

3E1-3* Band gap control with acoustic diffraction modes in two-dimensional phononic crystals
Hwi Suk Kang†, Kang Il Lee2, Suk Wang Yoon1 (1Sungkyunkwan Univ.; 2Kangwon National Univ.)

3E1-4* GHz extraordinary acoustic transmission of bulk waves through nanostructures
Hiroya Tozawa1†, Motonobu Tomoda1, Paul Otsuka1, Sylvain Mezil1, Osamu Matsuda1, Istvan Veres2, Oliver Wright1
(1Hokkaido Univ.; 2Research Center for Non-destructive Testing)

3E1-5 Imaging of laser excited surface acoustic wave for in-process evaluation of 3D additive manufacturing (AM) process
Harumichi Sato1, Hisato Ogiso1, Naoko Sato1, Toru Shimizu1, Shizuka Nakano1, Yoshikazu Ohara2, Kazushi Yamanaka2
(1AIST; 2Tohoku Univ.)

3E1-6* Collision dynamics of microdroplets
Daichi Hayakawa1, Shujiro Mitani, Keiji Sakai (Univ. of Tokyo)

15:30-15:45 Break

15:45-16:45 Measurement techniques II  Chair: Mitsutaka Hikita (Kogakuin Univ.)

3E2-1 Ultrasonic guided wave testing based on high sensitive SQUID magnetic sensor for pipes
Yoshimi Hatsukade1, Natsuki Masutani, Shouta Teranishi, Ken Masamoto, Shouya Kanenaga (Kindai Univ.)

3E2-2* Nondestructive failure analysis technique for IC interconnection by using ultrasound heating
Takuto Matsui1†, Naohiro Hozumi1, Akihiro Otaka1, Toru Matsumoto2
(1Toyohashi Univ. of Tech.; 2Hamamatsu Photonics K.K.)

3E2-3* Viscoelasticity response during fibrillation of amyloid β peptides on quartz crystal microbalance biosensor
Yen-Ting Lai1, Hirotsugu Ogi, Arihiro Iwata, Masahiko Hirao (Osaka Univ.)

3E2-4 Simultaneous measurement of gas concentration and temperature by the ball SAW sensor
Kazushi Yamanaka1,2†, Shingo Akao1,2, Nobuo Takeda1,2, Toshihiro Tsuji1, Toru Oizumi1, Yusuke Tsukahara1,2
(1Tohoku Univ.; 2Ball Wave Inc.)

16:45-17:00 CLOSING