Monday, November 25

10:00-10:15 OPENING

10:15-11:30 Biomedical ultrasound I, High power ultrasound I
Chair: Ryo Nagaoka (Univ. of Toyama)

1J1-1* Estimation of Intravascular Attenuation by Analyzing Ultrasonic Backscatter to Evaluate Red Blood Cell Aggregation
○Kanta Nagasawa¹, Akiyo Fukase¹, Shohei Mori¹, Mototaka Arakawa¹, Satoshi Yashiro², Yasushi Ishigaki², Hiroshi Kanai¹ (¹Tohoku Univ., ²Iwate Medical Univ.)

1J1-2* Effect of Acoustic Impedance Distribution and Histopathological Structure on Backscatter Coefficient Analysis of Skin Tissue
○Masaaki Omura, Kenji Yoshida, Shinsuke Akita, Tadashi Yamaguchi (Chiba Univ.)

1J1-3 Basic Study on Optimal Cropping Setting in Convolution Neural Network for Ultrasonic Liver Tumor Diagnosis
○Makoto Yamakawa¹, Tsuyoshi Shiina¹, Naoshi Nishida¹, Masatoshi Kudo² (¹Kyoto Univ., ²Kindai Univ.)

1J1-4 Effects of electric fields on sonoluminescence intensity and bubble dynamics
○Hyang-Bok Lee¹, Pak-Kon Choi² (¹Japan Women's Univ., ²Meiji Univ.)

1J1-5 Evaluation of the sound field in ultrasonic atomization using a horn
○Teruyuki Kozuka¹, Takuya Yoshimoto¹, Masanori Sato², Shin-ichi Hatanaka¹, Kyuichi Yasui² (¹Aichi Inst. of Tech., ²Honda Electronics, ³Univ. of Electro-Comm., ⁴AIST)

11:30-12:30 Piezoelectric devices I, Measurement techniques I
Chair: Hiroyuki Odagawa (National Inst. of Tech, Kumamoto Col.)

1J2-1* High Frequency Thickness Expansion Mode Bulk Acoustic Wave Resonator Using LN Single Crystal Thin Plate
○Kohei Matsumoto, Michio Kadota, Shuji Tanaka (Tohoku Univ.)

1J2-2* Large electromechanical coupling and temperature characteristic of free-standing sputter-epitaxial PbTiO₃ plates
○Yuka Matsuda¹², Takahiko Yanagitanii¹¹²³ (¹Waseda Univ., ²ZAIKEN, ³JST PRESTO)

1J2-3* Estimation of position and velocity for a moving large target with specular surface using simultaneous transmission of M-sequence ultrasound signals
○Shogo Nonaka, Shinnosuke Hirata, Hiroyuki Hachiya (Tokyo Tech.)

1J2-4 Vibration structure and radiation waves of active fault
○Toshiaki Kikuchi¹, Koichi Mizutani⁷ (¹Natl. Defense Academy, ⁷Univ. of Tsukuba)

12:30-14:00 LUNCH TIME

14:00-14:40 40th Anniversary Special Talk
Chair: Hiroshi Kanai (Tohoku Univ.)

1PL Memoir of my walk along with the progress of USE (Symposium on Ultrasonic Electronics)
○Yoshiaki Watanabe (Doshisya Univ.)
1P1-1* Analysis of Elastic Vortex Wave for Optical Orbital Angular Momentum Mode Conversion in Ring Core Optical Fiber
  ○Takuya Shoro, Hiroki Kishikawa, Nobuo Goto (Tokushima Univ.)

1P1-2 High-power properties of (Sr,Ca)₅NaNb₂O₁₅ piezoelectric ceramics in a longitudinal mode
  ○Yutaka Doshida¹, Hideki Tamura², Satoshi Tanaka¹, Tomohiro Harada¹, Hiroyuki Shimizu¹
    (¹Ashikaga Univ., ²Tohoku Inst. of Tech., ³Nagaoka Univ. of Tech., ⁴Taiyo Yuden Co., Ltd.)

1P1-3* High-pressure elasticity of Baltic amber studied by Brillouin spectroscopy
  ○Kyoung Hun Oh¹, Young-Ho Ko¹, Jae-Hyeon Ko², Seiji Kojima¹
    (¹Agency for Defense Dev., ²Hallym Univ., ³Univ. of Tsukuba)

1P1-4* Acoustic wave propagation at a 3-layered graphene/LiNbO₃ interface
  ○Shohei Yoshimura¹, Daichi Eto¹, B. Onwona-Agyeman¹, Yong Sun¹
    (¹Kyushu Inst. of Tech., ²Univ. of Ghana)

1P1-5* Fabrication of CaBi₂Ta₂O₉/Bi₂Ti₃O₁₂ ultrasonic transducers by automatic spray method
  ○Ayako Inano, Shohei Nozawa, Takumi Hara, Kei Nakatsuma, Makiko Kobayashi (Kumamoto Univ.)

1P1-6* High Temperature Performance at 700°C of LiNbO₃/Bi₂Ti₃O₁₂ Ultrasonic Transducer Composite
  ○Daichi Maeda, Minori Furukawa, Shohei Nozawa, Makiko Kobayashi (Kumamoto Univ.)

1P1-7* Low Temperature Fabrication of Bi₂Ti₃O₁₂/Al₂O₃ Sol-Gel Composite Ultrasonic Transducer
  ○Kazuki Okada, Shohei Nozawa, Kei Nakatsuma, Makiko Kobayashi (Kumamoto Univ.)

1P1-8* Analysis and Estimation of Thermal Conductivity of Si Nanopillar/SiGe Composite Film by Using Photo-Thermal Spectroscopy Measurement with a Multi-layer Model Calculation
  ○Tomoki Harada¹, Tsubasa Ak¹, Daisuke Ohori¹, Seiji Samukawa¹, Tetsuo Ikari¹, Atsuhiko Fukuyama¹
    (¹Univ. of Miyazaki, ²Tohoku Univ.)

1P2-1 Source-State-Controlled Equivalent Circuit for Electromechanical Transducer
  ○Michio Ohki (Natl. Defense Academy)

1P2-2* Development of laminated lithium niobate transducer available at 500°C
  ○Satoru Abe, Toshihiro Tsuji, Yoshikazu Ohara, Tsuyoshi Mihara (Tohoku Univ.)

1P2-3* Development of couplant-free point-contact ultrasonic probe for concrete measurement
  ○Tatsuo Suzuki, Toshihiro Tsuji, Yoshikazu Ohara, Tsuyoshi Mihara (Tohoku Univ.)

1P2-4 Investigation on Arrangement of Sound Source Elements to Improve Results of Reflection Point Search by Rectangular Sound Source
  ○Hiroyuki Masuyama (NIT, Toba College)

1P2-5* Focus and frequency evaluation of acoustic lens type focused ultrasonic probe
  ○Yuusuke Tanaka, Akira Abe, Yukio Ogura (Japan Probe Co., Ltd.)

1P2-6 Basic study on intraocular pressure measurement using acoustic radiation pressure
  ○Margarette Kozuka, Motoaki Sano (Toin Univ. of Yokohama)

1P2-7 Anisotropy Measurement of Shear Wave Propagation by External Excitation
  ○Ren Koda, Yoshiki Yamashita (Gunma Univ.)

1P2-8* Comparison of contact/non-contact measurement of speed of sound for a tissue-mimicking phantom with inclined sides
  ○Toshiaki Okubo, Shinnosuke Hirata, Hiroyuki Hachiya (Tokyo Tech.)

1P2-9* Position and angle detection system using photo-acoustic transmitter for catheter devices
  ○Ryo Imai, Tomohiko Tanaka (Hitachi, Ltd.)

1P2-10 Application of spatial spectral entropy on composite materials for noncontact acoustic inspection
  ○Kazuko Sugimoto¹, Tsuneyoshi Sugimoto¹, Noriyuki Utagawa², Chitose Kuroda²
    (¹Toin Univ. of Yokohama, ²Sato Kogyo Co., Ltd.)

1P2-11 Measurement of heat flow from ultrasonic transducer to ultrasonic phantom
  ○Takeyoshi Uchida, Masahiro Yoshioka, Ryuzo Horiuchi (AIST)
1P2-12* Precise ultrasonic distance measurement of moving object by using single Linear-Period-Modulated signal independent of Doppler velocity estimation
○ Haruki Chiba, Minoru Kuribayashi Kurosawa (Tokyo Tech.)

1P2-13* Viscoelasticity measurement for living tissue using airborne ultrasonic Doppler method
○ Ryota Sando, Shinnosuke Hirata, Marie Tabaru (Tokyo Tech.)

1P2-14 Fourier Beamforming with no approximate processing for virtual source
○ Chikayoshi Sumi, Naoto Yamazaki (Sophia Univ.)

1P2-15* Separation and Detection of Odorous Compounds at Parts-Per-Billion by Volume Levels Using Ball SAW Gas Chromatograph
○ Takamitsu Iwaya¹, Singo Akao¹, Nobuo Takeda¹, Toshihiro Tsuji², Toru Oizumi¹, Hideyuki Fukushima¹, Tatsuhiko Okano¹, Maki Sugawara¹, Yusuke Tsukahara¹, Kazushi Yamanaka¹² (*Ball Wave Inc., ²Tohoku Univ.)

1P3-1 Low Velocity I.H.P. SAW using Heavy Electrodes for Downsizing
○ Ryo Nakagawa, Hideki Iwamoto, Tsutomu Takai (Murata Mfg.)

1P3-2* Spurious Mode Suppression in I.H.P. SAW Resonator using High Velocity Film on Glass Substrate
○ Sho Nagatomo, Hideki Iwamoto, Yasumasa Taniguchi (Murata Mfg.)

1P3-3 Spurious-free and steep band rejection filter using LiTaO₃/quartz HAL SAW resonator
○ Michio Kadota, Yoshimi Ishii, Shuji Tanaka (Tohoku Univ.)

1P3-4* Analysis of Leaky Surface Acoustic Waves on Similar-Material Bonded Structure
○ Takumi Fujimaki, Masashi Suzuki, Shoji Kikio (Univ. of Yamanashi)

1P3-5 Propagation Properties of Leaky SAW on Water-loaded LiTaO₃/Quartz Bonded Structure
○ Shoji Kikio¹, Yoshihi Kato¹, Ryota Suenaga¹, Masashi Suzuki¹, Ami Tezuka¹, Hiroyuki Kuwae¹, Hiroaki Yokota¹, Toshifumi Yona¹, Kazuhito Kishita¹, Jun Mizuno¹ (*Univ. of Yamanashi, ²Waseda Univ., ³The Japan Steel Works, Ltd.)

1P3-6 Theoretical Analysis of Leaky SAW Propagation Characteristics on ScAIN film/Quartz
○ Masashi Suzuki, Shoji Kikio (Univ. of Yamanashi)

1P3-7* Analysis of guided mode in TC-SAW device by using multi-mode COM model
○ Gongbin Tang, Rei Goto, Hiroyuki Nakamura (Skyworks Solutions, Inc.)

1P3-8* Study of Excess Loss Mechanism in TC-SAW Devices Based on FEM Simulation Using Hierarchical Cascading Technique
○ Naoto Matsuoka¹², Xinyi Li¹², Tatsuya Omori², Ken-ya Hashimoto² (*Nihon Dempa Kogyo, ²Chiba Univ., ³Univ. of Electric Sci. and Tech.)

1P3-9 Study on dominant 2nd order nonlinear mechanism in AIN FBAR
○ Taisei Irieda¹, Tokihiro Nishihara¹, Masanori Ueda¹, Ken-ya Hashimoto¹ (*Taiyo Yuden Co., Ltd., ²Chiba Univ.)

1P3-10* Mechanism of Enlarged Nonlinear H2 Response of Transverse Modes in RF BAW Devices
○ Luyan Qu¹, Xinyi Li²¹, Tatsuya Omori¹, Ken-ya Hashimoto¹ (*Chiba Univ., ²Univ. of Electric Sci. and Tech.)

1P4-1 On the variations in the size distribution of bulk nanobubbles in response to static pressure increment
○ Toru Tuziuti, Kyoichir Yasui, Wataru Kanematsu (AIST)

1P4-2 Analysis of vortex caused by multiple acoustic streaming
○ Jungsoon Kim¹, Jihee Jung¹, Moojoon Kim¹ (*Tongmyong Univ., ²GU Ltd., ³Pukyong Nat’l Univ.)

1P4-3 A cylindrical waveguide with different diameters for extracting high-intensity pressure pulse of underwater spark-induced shock wave and for suppressing the impact of cavitation
○ Koji Aizawa, Takumi Kobayashi (Kanazawa Inst. Tech.)

1P4-4 Coupling effect between sonolysis and photocatalysis in dilute reactant solution
○ Kiyoshi Shinashi¹, Hisashi Tanaka¹, Hisashi Harada¹ (*Chuo Gakuin Univ., ²Meisei Univ.)

1P4-5 Sonochemiluminescence using focused ultrasonands at 1 MHz
○ Pak-Kon Choi¹, Koichi Kano¹, Hyang-Bok Lee², Moojoon Kim¹, Jungsoon Kim¹ (*Meiji Univ., ²Japan Women’s Univ., ³Pukyong Univ., ⁴Tongmyon Univ.)
1P4-6* Characteristics of particle size distribution of agglomerates in an ultrasonic source with a cylindrical rigid wall
○Rintaro Motoi, Takuya Asami, Hikaru Miura (Nihon Univ.)

1P4-7 A prototype of a thermoacoustic prime mover of the full-length 29 m -Numerical calculation of system internal diameter and onset temperature-
○Shin-ichi Sakamoto, Kenshiro Inui, Yuichiro Orino, So Ueno (Univ. of Shiga Pref.)

1P4-8* Control of surface profile of a vari-focal lens using ultrasound and a thixotropic gel
○Daiko Sakata, Daisuke Koyama, Mami Matsukawa (Doshisha Univ.)

1P4-9* Generation of High-Intensity Pulsed Ultrasound by Airborne Ultrasound Phased Array
○Kyoosuke Shimizu, Ayumu Osumi, Youichi Ito (Nihon Univ.)

1P4-10 Evaluation of high power property of (Bi,Na)TiO$_3$-BaTiO$_3$ and its application for elastic fin type ultrasonic motor
○Susumu Miyake$^1$, Tomohiro Harada$^2$, Hiroyuki Shimizu$^2$, Sumiaki Kishimoto$^2$, Takeshi Morita$^1$ ('The Univ. of Tokyo, 'Taiyo Yuden Co., Ltd.)

1P4-11* Experiment Evaluation of Switching Drive Method Linked-Twin-Square –USM for Servo-positioning Control
○Ryou Ishiguro, Hideki Tamura, Takehiro Takano (Tohoku Inst. of Tech.)

1P4-12* Resonance control of coaxial thermoacoustic system by an additional stack -Examination using an identical thermal input-
○Riku Onishi$^1$, Shin-ichi Sakamoto$^2$, Kazuki Shiraki$^1$, Daichi Kuroki$^1$, Yoshiaki Watanabe$^1$ ('Doshisha Univ., 'Univ. of Shiga Pref.)

1P4-13* Advancement of energy conversion in traveling-wave thermoacoustic-system by heating the center of a stack
○Yuto Kawashima$^1$, Shin-ichi Sakamoto$^2$, Daichi Kuroki$^1$, Kazuki Shiraki$^1$, Yuya Kurata$^1$, Yoshiaki Watanabe$^1$ ('Doshisha Univ., 'Univ. of Shiga Pref.)

1P5-1* Self-demodulation Characteristics of Amplitude-modulated Bone-conducted Ultrasound in the Human Body Presented to the Neck, Trunk and Arm
○Koichiro Doi$^1$, Riki Ogino$^1$, Sho Otsuka$^{1,2}$, Seiji Nakagawa$^{1,2}$ ('Chiba Univ., 'Chiba Univ. Hospital)

1P5-2* Viscoelasticity estimation of radial artery by simultaneously measuring changes in pressure and diameter using single ultrasound probe
○Takumi Saito$^1$, Shohei Mori$^1$, Mototaka Arakawa$^1$, Shigeo Ohba$^1$, Kazuto Kobayashi$^2$, Hiroshi Kanai$^1$ ('Tohoku Univ., 'Honda Electronics)

1P5-3 Spatial coherence for multi-angle plane-wave DMAS beamforming in clinical ultrasonic imaging of carotid artery
○Che-Chou Shen, Pei-Ying Hsieh (NTUST)

1P5-4* Accuracy evaluation of 3D velocity estimation by multi-frequency phase tracking method with matrix array probe
○Soichiro Nunome, Ryo Nagaoka, Hideyuki Hasegawa (Univ. of Toyama)

1P5-5 Evaluation of Relationship between Liver Pathological Structure and Speed of Sound of Longitudinal Wave
○Takuya Ogawa, Kenji Yoshida, Takashi Ohnishi, Hideaki Haneishi, Tadashi Yamaguchi (Chiba Univ.)

1P5-6* Longitudinal Wave Velocity and Crystal Orientation of HAp in Equine Cortical Bone
○Mineaki Takata$^1$, Yoshinori Kasashima$^2$, Norihisa Tamura$^2$, Tsukasa Nakamura$^1$, Tomoya Oda$^1$, Mami Matsukawa$^1$ ('Doshisha Univ., 'JRA Equine Research Institute)

1P5-7* In vivo Application of Fatty Liver Progression Assessment Method by Double Nakagami Model
○Yusuke Sato$^1$, Kazuki Tamura$^1$, Kenji Yoshida$^1$, Tadashi Yamaguchi$^1$ ('Chiba Univ., 'Hamamatsu Univ. School of Med.)

1P5-8 Novel method of lipid content quantification using double-Nakagami distribution model in rat liver steatosis
○Kazuki Tamura$^1$, Jonathan Mamou$^2$, Kenji Yoshida$^1$, Hiroyuki Hachiya$^4$, Tadashi Yamaguchi$^1$ ('Hamamatsu Univ. School of Med., 'Riverside Research, 'Chiba Univ., 'Tokyo Tech.)
1P5-9* Quantitative evaluation of liver fibrosis using optimal input parameters for multi-Rayleigh model with two components
  ○Chuang Zhang, Shinnosuke Hirata, Hiroyuki Hachiya (Tokyo Tech.)

1P5-10* Development of Backscatter Coefficient Evaluation Method on Conventional Ultrasound Scanner – Comparison with Single-Element Transducer
  ○Takuma Oguri1,2, Masaaki Omura2, Takeru Mizoguchi2, Kazuya Ito2, Atsuko Yamada2, Tadashi Yamaguchi2 (GE Healthcare, Chiba Univ.)

1P5-11* Comprehensive scattering characteristics analysis of soft tissues with a high-frequency annular array
  ○Takeru Mizoguchi1, Kenji Yoshida1, Jonathan Mamou2, Jeffrey A. Ketterling2, Tadashi Yamaguchi1 (Chiba Univ., Riverside Research)

1P5-12* Comparison of Different Sound Field Correction Methods on Backscatter Coefficient Analysis
  ○Kazuya Ito1, Masaaki Omura1, Takuma Oguri2,1, Takeru Mizoguchi1, Atsuko Yamada1, Kenji Yoshida1, Tadashi Yamaguchi1 (Chiba Univ., GE Healthcare)

1P5-13 Theoretical Verification on Changes in Ultrasonic Peak Frequency during Measurement of Red Blood Cell Aggregation Degree
  ○Takayuki Sato, Keisuke Nabuchi (Tokyo Metropolitan Univ.)

1P5-14* Displacement Distribution Measured by Directional Acoustic Field Generated by Dual Ultrasound Excitation to Estimate Viscoelasticity of Muscle Tissues
  ○Hibiki Kawamura, Shohei Mori, Mototaka Arakawa, Hiroshi Kanai (Tohoku Univ.)

1P5-15* Study on speckle reduction of medical ultrasound images using deep learning with fully convolutional network
  ○Kazuma Ando, Ryo Nagaoka, Hideyuki Hasegawa (Univ. of Toyama)

1P5-16* Examination of effectiveness of signal-to-noise ratio factor in estimation of sound speed of medium
  ○Fumitada Sanmou, Ryo Nagaoka, Hideyuki Hasegawa (Univ. of Toyama)

1P6-1 Preliminary Results of Refractive Index Measurements for Some Materials of Convex Acoustic Lens Applying to Ambient Noise Imaging
  ○Kazuyoshi Mori, Hanako Ogasawara (Natl. Defense Academy)

1P6-2 Design of Wide Angle Compound Eye Underwater Acoustic Lens
  ○Yuji Sato, Tadashi Ebihara, Koichi Mizutani, Naoto Wakatsuki (Univ. of Tsukuba)

1P6-3 A Study of Acoustic Properties of Surface Seabed Sediment at the Ariake Sea
  ○Hanako Ogasawara, Masato Yoshiguchi, Kazuyoshi Mori (Natl. Defense Academy)

17:10-17:55 Physical acoustics I Chair: Hirotsugu Ogi (Osaka Univ.)

1J3-1* Multivariate Curve Resolution for Angle-resolved polarized Raman Spectroscopy of Ferroelectrics
  ○Shinya Tsukada1, Yasuhiro Fujii2 (Shimane Univ., Ritsumeikan Univ.)

1J3-2* Effect of Insertion of the Strain Relaxation Layer on the Carrier Transport Properties of InGaAs/ GaAsP Superlattice Solar Cells Investigated by the Photo-Thermal Spectroscopy
  ○Airi Watanabe1, Tsubasa Nakamura1, Ryoei Iwanaga1, Masakazu Sugiyama1, Tetsuo Ikari1, Atsuhiro Fukuyama1 (Univ. of Miyazaki, The Univ. of Tokyo)

1J3-3 Symmetric and asymmetric spectra of acoustic waves resonantly transmitted through a slab in a fluid
  ○Seiji Mizuno (Hokkaido Univ.)

18:00 Organizing Committee Meeting

Tuesday, November 26

9:00-10:15 Physical acoustics II, Measurement techniques II Chair: Oliver Wright (Hokkaido Univ.)
2E1-1* Phonon propagation in isotope diamond thin films studied by pump-probe laser reflectivity measurement
○Hsu Kai Weng¹, Akira Nagakubo¹, Hideyuki Watanabe², Hirotsugu Ogi¹ (¹Osaka Univ., ²AIST)

2E1-2 Acoustic phonon anomalies in Ca doped SrTiO₃ quantum ferroelectrics as studied by Brillouin Scattering
○Venkatasubramanian Sivasubramanian¹, Seiji Kojima² (¹Indira Gandhi Centre for Atomic Research, ²Univ. of Tsukuba)

2E1-3 Development of confocal picosecond ultrasonics
○Nobutomo Nakamura, Atushi Machara, Hirotsugu Ogi (Osaka Univ.)

2E1-4 Efficiency improvement of outer wall inspection using acoustic irradiation induced vibration from UAV
○Tsuneoyoshi Sugimoto¹, Kazuku Sugimoto¹, Itsuki Uechi¹, Noriyuki Utagawa², Chitose Kuroda³ (¹Toin Univ. of Yokohama, ²Sato Kogyo Co., Ltd.)

2E1-5 Adhesive free PVDF copolymer focused transducers for high frequency acoustic imaging
○Anowarul Habib¹, Sanat Wagle², Frank Melandsø¹ (¹UiT The Arctic Univ. of Norway, ²Elop AS)

10:15-11:30 Piezoelectric devices II, High power ultrasound II, Ocean acoustics I
Chair: Jun Kondoh (Shizuoka Univ.)

2E2-1 Injection-Lock-Type BAW Oscillator Aiming for Self-Oscillating Atomic Clock
○Motoaki Hara¹, Yuichiro Yano¹, Masatoshi Kajita¹, Shinsuke Haru¹, Akifumi Kasamatsu¹, Hiroyuki Ito², Tetsuya Ido¹ (¹Natl. Inst. of Information and Communications Tech., ²Tokyo Tech.)

2E2-2 Surface analysis of SH-SAW immnosensors using displacement penetration effect into specimens
○Koji Kano¹, Hiromi Yatsuda², Jun Kondoh¹ (¹Shizuoka Univ., ²Japan Radio Co., Ltd.)

2E2-3* Double-parabolic-reflectors acoustic waveguides (DPLUS) for minimally invasive treatments
○Kang Chen¹, Takasuke Irie¹, Takashi Iijima¹, Takeshi Morita¹ (¹The Univ. of Tokyo, ²Microsonic Co., Ltd., ³AIST)

2E2-4 Ultrasound homogenises suspensions of hydrophobic particles
○Michiel Postema¹, Ryonosuke Matsumoto¹, Ri-ichiro Shimizu², Albert T. Poortinga³, Nobuki Kudo² (¹Univ. Witwatersrand, ²Hokkaido Univ., ³Eindhoven Univ. Technol.)

2E2-5 Correlation Analysis of Fading Variation and Communication Performance according to Depth in Underwater Frequency Selective Channel
○Jihyun Park, Hyunsoo Jeong, Kyu-Chil Park (Pukyong National Univ.)

11:30-13:00 LUNCH TIME

13:00-13:50 Plenary Talk (Cosponsored by IEEE Ultrasonics, Ferroelectrics and Frequency Control Society Japan Chapter)
Chair: Kentaro Nakamura (Tokyo Tech.)

2PL Ultrasound for preclinical research: "Shear wave imaging and photoacoustic imaging of small animals and 3D cell culture systems"
○Pai-Chi Li (National Taiwan Univ.)

14:00-16:00 Poster Session
Chair: Tsuyoshi Mihara (Tohoku Univ.)

2P1-1 Fluidity measurement of gel-like microparticle dispersion by EMS system for assessing mechanical properties of dispersed particle
○Taichi Hirano, Shujiro Mitani, Keiji Sakai (The Univ. of Tokyo)

2P1-2 Interfacial elastic waves in the interface between tunable two-dimensional phononic crystals composed of magneto-elastic materials
○Yukihiro Tanaka, Shuna Nagai (Hokkaido Univ.)

2P1-3* Development of Multiphoton Excitation Thermal Lens Spectroscopy for Label-Free and High-Sensitive Detection
○Shinjuro Kohirata, Miki Isoda, Akira Harata (Kyushu Univ.)
2P2-14 Lifetime measurement of cavitation cloud bubbles using long exposure shadowgraphy

Gwansuk Kang¹, Yukio Tomita², Sung Chan Cho³, Jung Sik Hur³, Joo Ha Hwang¹, Min Joo Choi⁴
¹(Stanford Univ., ²Hokkaido Univ. of Education, ³KORUST, ⁴Jeju National Univ.)

2P2-15 Applying the Internet of things and quartz crystal microbalance oscillators to quality factor measurement

Yasuaki Watanabe, Yuuki Okamoto, Jing Wang, Takayuki Sato (Tokyo Metropolitan Univ.)

2P3-1* Ion beam induced a-axis in-plane oriented (0001) ScAlN thin film

Chiaki Masamune¹,², Takahiko Yanagitani¹-³
¹(Waseda Univ., ²ZAIKEN, ³JST PRESTO)

2P3-2* Design of double layered thickness-shear resonator using Langasite-type piezoelectric single crystal -Selection of optimal substrate orientation-

Yusuke Owada¹, Yuji Ohashi¹-², Masaya Omote³, Yuui Yokota¹, Shunsuke Kurosawa¹, Kei Kamada¹, Hiroki Sato¹, Satoshi Toyoda¹, Masao Yoshino³, Akihiro Yamaji¹, Akira Yoshikawa¹
¹(Hokkaido Univ., ²ZAIKEN, ³JST PRESTO)

2P3-3* Poling of Bi₄Ti₃O₁₂/Pb(Zr,Ti)O₃ by negative corona discharge

Takumi Hara, Shohei Nozawa, Kei Nakatsuma, Makiko Kobayashi (Kumamoto Univ.)

2P3-4* Poling of Pb(Zr,Ti)O₃/Pb(Zr,Ti)O₃ by negative corona discharge

Minor Furukawa, Shohei Nozawa, Takumi Hara, Kei Nakatsuma, Makiko Kobayashi (Kumamoto Univ.)

2P3-5* Poling degree Control of Pb(Zr,Ti)O₃/Pb(Zr,Ti)O₃

Hirotaka Makino, Kei Nakatsuma, Takumi Hara, Makiko Kobayashi (Kumamoto Univ.)

2P3-6* Pb(Zr, Ti)O₃/Pb(Zr, Ti)O₃ Poling by pulse voltage

Makie Hidaka, Minor Furukawa, Makiko Kobayashi (Kumamoto Univ.)

2P3-7* Effect of TiO₂ Sol-Gel Phase on Ultrasonic Properties

Shohei Nozawa, Minor Furukawa, Makiko Kobayashi (Kumamoto Univ.)

2P3-8 Simplification of Structure of Frequency-Change-Type Three-Axis Acceleration Sensor

Sumio Sugawara, Subaru Kudo (Ishinomaki Senshu Univ.)

2P3-9 Finite element analysis of the complex bar resonator with longitudinal-torsional vibration converter

Subaru Kudo, Yoshifumi Sasaki, Sumio Sugawara (Ishinomaki Senshu Univ.)

2P4-1* Effect of flow rate on washing rate for ultrasonic washing with running water

Hidenobu Hosaka, Takuya Asami, Hikaru Miura (Nihon Univ.)

2P4-2* Highly sensitive detection of amyloid-β seed by ultrasonic irradiation

Ryota Matsuda, Yasushi Oshikane, Kentarou Noi, Masatomo So, Yuji Goto, Hirotsugu Ogi (Osaka Univ.)

2P4-3 Enhancement of desorption amount of carbon dioxide gas from monoethanolamine solution using ultrasound and calcium chloride

Yuya Kitamura, Hirokazu Okawa, Takahiro Kato, Katsuyasu Sugawara (Akita Univ.)

2P4-4* Removal of arsenite from aqueous solutions using ultrasonic irradiation in the presence of a lead electrode

Miyuki Ohta, Hirokazu Okawa, Takahiro Kato, Katsuyasu Sugawara (Akita Univ.)

2P4-5 Effect of Frequency on Ultrasonic Degassing

Yoshiyuki Asakura¹, Keiji Yasuda²
¹(Honda Electronics, ²Nagoya Univ.)

2P4-6 Effect of Ultrafine Bubbles on Ethanol Enrichment from Aqueous Solution by Ultrasonic Atomization

Keiji Yasuda¹, Yumi Nohara¹, Yoshiyuki Asakura²
¹(Nagoya Univ., ²Honda Electronics)

2P4-7 Piezoelectric Linear Motor with Ultrasound Domain Tuning Fork Resonance Structure

Chaodong Li, Cong Xi (Shanghai Univ.)

2P4-8* Study on spherical shell-like stator for weight reduction of spherical ultrasonic motor

Kento Goda, Manabu Aoyagi (Muroran Inst. of Tech.)

2P4-9* Resonance characteristics of a longitudinal-torsional complex vibration source using a transmission rod with helical slits

Shinya Oishi, Takuya Asami, Hikaru Miura (Nihon Univ.)
2P4-10* Resonance mode control by superposition of external sound waves in standing-wave thermoacoustic system -Relationship between viscous boundary layer and resonance mode-

○Yuya Kurata¹, Shin-ichi Sakamoto², Kazuki Shiraki², Koto Hiramatsu¹, Yuto Kawashima¹, Yoshiaki Watanabe¹

¹(Doshisha Univ., ²Univ. of Shiga Pref.)

2P4-11* Experimental study of the thermal buffer tube temperature gradient and onset temperature in a loop-tube-type thermoacoustic system

○Hidekazu Katsuki, Shin-ichi Sakamoto (Univ. of Shiga Pref.)

2P4-12* Measurement of temperature distribution with 3D-printer and etching meshes stack in thermoacoustic heat pump

○Shintaro Kataoka, Shin-ichi Sakamoto (Univ. of Shiga Pref.)

2P5-1* Study on method for estimating focal pressure by detecting variation in speed of sound

○Yutaro Tsujimoto, Kazuya Shimizu, Takashi Azuma, Shu Takagi (The Univ. of Tokyo)

2P5-2 Effect of phase frequency response of hydrophone sensitivity on instantaneous acoustic pressure of diagnostic ultrasound

○Yusuke Chiba¹, Masahiro Yoshioka¹, Ryuzo Horiiuchi¹, Shin-ichiro Umemura¹ ¹(AIST, ²Tohoku Univ.)

2P5-3 Vibration characteristic analysis according to thickness of support layer of diaphragm type PZT resonator

○Masatoshi Suzuki¹, Norio Tagawa¹, Masasumi Yoshizawa¹, Takesaku Irie¹ ¹(Tokyo Metropolitan Univ., ²Tokyo Met. Coll. of Industrial Tech., ³Microsonic Co, Ltd.)

2P5-4 Improvement of Vibration Characteristics of Vibrator for Microinjection

○Toshihiro Koya¹, Jun Hasegawa¹, Fujio Miyawaki² ¹(Takushoku Univ., ²Tokyo Denki Univ.)

2P5-5* Propagation and perception characteristics of distantly-presented bone-conducted sounds - Comparison between ultrasonic and low-frequency ranges-

○Riki Ogino¹, Koichiro Doi¹, Sho Otsuka¹ ², Seiji Nakagawa¹ ² ¹(Chiba Univ., ²Chiba Univ. Hospital)

2P5-6* Anisotropy of ultrasonically induced electric potentials in bovine cortical bone

○Tsukasa Nakamura, Mineaki Takata, Itsuki Michimoto, Tomoya Oda, Shinji Takayanagi, Mami Matsukawa (Doshisha Univ.)

2P5-7* Simulation Study of Ultrasonic Wave Convergence in the artificial Human Femoral Neck model by X-ray CT

○Takashi Misaki¹, Masaya Saeki¹, Leslie Bustamante¹, Nobuo Niimi², Ko Chiba¹, Mami Matsukawa¹

¹(Doshisha Univ., ²Nippon Sigmax, ³Nagasaki Univ.)

2P5-8* Ultrasound propagation in diploe of swine skull

○Itsuki Michimoto, Takashi Misaki, Tsukasa Nakamura, Mami Matsukawa (Doshisha Univ.)

2P5-9 Effect of Ultrasound Direction on Piezoelectric Signal Generated in Cancellous Bone

○Atsushi Hosokawa (NIT, Akashi College)

2P5-10 Uncertainty Evaluation of Temperature Measurement of Tissue Mimicking Material by Thermographic Cameras

○Naohiko Sasajima¹, Satoshi Yamazaki², Masahiro Yoshioka¹ ¹(AIST, ²CANON Medical Systems Corp.)

2P5-11* Fabricaion of Bone Phantoms Based on Human Bone Data and Ultrasonic Scattering Experiments

○Takuzumi Kasuga, Mikitsugu Nakabayashi, Takumi Otani, Shohei Nakata, Masahiro Ohno (Chiba Inst. of Tech.)

2P5-12* Development of Visualization Method for Wide Range of Temperature Rise Induced by High Intensity Focused Ultrasound Using Tissue-mimicking Phantom

○Yushi Nakamura¹, Kiyoshi Yoshinaka², Ryo Takagi² ¹(Tokyo Denki Univ., ²AIST)

2P5-13* Visualization of simulated lymph channels by contrast-enhanced active Doppler ultrasonography using unfocused wave

○Katsuya Saito¹, Kenji Yoshida¹, Masaaki Omura¹, Takuma Oguri¹, Naohisa Kamiyama², Tadashi Yamaguchi¹

¹(Chiba Univ., ²GE Healthcare)
Visualization of cell structure by optical resolution photoacoustic microscopy with sub-micron lateral resolution
○Ryo Shintate¹, Ryo Nagaoka², Kazuto Kobayashi¹, Yoshifumi Saijo¹
(¹Tohoku Univ., ²Univ. of Toyama, ³Honda Electronics)

Effect of Intermittent Duration of Ultrasound Exposure on Bubble Behavior and Temperature Rise in Bubble-Enhanced Ultrasonic Heating
○Sayaka Ito, Yui Tanaka, Shin-ichiro Umemura, Shin Yoshizawa (Tohoku Univ.)

Fundamental Evaluation of Weighted Filtered Delay Multiply and Sum Beamforming
○Shibuki Yamasaki, Masayuki Tanabe (Kumamoto Univ.)

Effect of Receive Aperture Size on Image Quality of Filtered Delay Multiply and Sum Beamforming
○Masayuki Tanabe (Kumamoto Univ.)

Self Shape Estimation of Ultrasonic Flexible Probe using Direct Waves Among Elements
○Miki Sada, Masayuki Tanabe (Kumamoto Univ.)

Time-Delay based Mimicking Dolphin Whistle for Covert Underwater Communication
○Hojun Lee¹, Jongmin Ahn¹, Yongcheol Kim¹, Sangkug Lee², Jaehak Chung² (¹Inha Univ., ²ADD)

Investigation of a channel tracking based time reversal processing for underwater acoustic communication
○Yukihiro Kida, Mitsuyasu Deguchi, Takuya Shimura (JAMSTEC)

Analysis of Experimental Results for Space Diversity Techniques in Underwater Acoustic Communication
○Kyu-Chil Park¹, Hyunsoo Jeong¹, Jihyun Park¹, Jinnam Park² (¹Pukyong Nat'l Univ., ²Kyungsung Univ.)

Performance of Autoencoder for Image Denoising in Underwater Communication
○Hyunsoo Jeong, Kyu-Chil Park, Jihyun Park (Pukyong National Univ.)

Oscillating endoskeletal antibubbles
○Nobuki Kudo¹, Rustem Uzbekov³,⁴, Ryonosuke Matsumoto¹, Ri-ichiro Shimizu¹, Craig Carlson⁴, Nicole Anderton⁴, Aurélie Deroubaix¹, Clement Penny², Albert T. Poortinga¹, David M. Rubin⁴, Ayache Bouakaz², Michiel Postema¹
(¹Hokkaido Univ., ²Univ. Tours, ³Moscow State Univ., ⁴Univ. Witwatersrand, ¹Eindhoven Univ. Technol.)

Basic study on estimation method of shear stress in carotid artery using blood flow imaging
○Ryo Nagaoka¹, Kazuma Ishikawa¹, Michiya Mozumi¹, Magnus Cinthio², Hideyuki Hasegawa¹
(¹Univ. of Toyama, ²Lund Univ.)

Assessments of propagation of bone-conducted ultrasound presented to the arm using laser-Doppler vibrometry
○Seiji Nakagawa¹,², Hiromu Ishikawa¹, Riki Ogino¹, Koichiro Doi¹, Sho Otsuka¹,² (¹Chiba Univ., ²Chiba Univ. Hospital)

Biomedical ultrasound II

Oscillating endoskeletal antibubbles
○Nobuki Kudo¹, Rustem Uzbekov³,⁴, Ryonosuke Matsumoto¹, Ri-ichiro Shimizu¹, Craig Carlson⁴, Nicole Anderton⁴, Aurélie Deroubaix¹, Clement Penny², Albert T. Poortinga¹, David M. Rubin⁴, Ayache Bouakaz², Michiel Postema¹
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Awards Ceremony

Banquet
Wednesday, November 27

9:00-10:15  High power ultrasound III, Piezoelectric devices III  
Chair: Subaru Kudo (Ishinomaki Senshu Univ.)

3J1-1  Development of high intensity and high frequency ultrasonic transducers using piezoelectric films  
○Mutsuo Ishikawa¹, Ayahito Tsukamoto¹, Nao Saito¹, Akito Endo¹, Shintaro Yasui¹, Marie Tabaru¹, Hiroshi Funakubo¹, 
Minoru Kurosawa¹ (¹Toin Univ. of Yokohama, ¹Kishu Giken Kogyo Co., Ltd, ¹Tokyo Tech.)

3J1-2*  Evaluation of molecular orientation in the large aperture liquid crystal lens using ultrasound vibration  
○Yuki Harada¹, Marina Fukui¹, Daisuke Koyama¹, Akira Emoto², Mami Matsukawa¹  
¹(Doshisha Univ., ²Tokushima Univ.)

3J1-3*  Multivariable extremum seeking control of preloaded controllable rotary ultrasonic motor  
○Abdulrah Mustafa, Takeshi Morita (The Univ. of Tokyo)

3J1-4*  Validation of model of kinetics between streptavidin and biotinylated microbubbles  
○Miyuki Tanaka¹, Kenji Yoshida¹, Yoshiaki Watanabe¹ (¹Doshisha Univ., ²Chiba Univ.)

3J1-5*  Analysis of Longitudinal Leaky SAW on LiNbO₃/Amorphous Layer/Quartz Structure  
○Shiori Asakawa¹, Junki Hayashi¹, Masashi Suzuki¹, Shoji Kakio¹, Ami Tezuka¹, Hiroiyuki Kuwae², Hiroaki Yokota¹, 
Toshifumi Yonai¹, Kazuhito Kishida¹, Jun Mizuno¹ (¹Univ. of Yamanashi, ²Waseda Univ., ³The Japan Steel Works, Ltd.)

10:15-11:30  Measurement techniques III, Biomedical ultrasound III  
Chair: Hideyuki Nomura (Univ. of Electro-Comm.)

3J2-1*  Resonance theory of elastic waves scattered from an elastic cylinder with a spring interface  
○Kazusa Yamaguchi, Naoki Matsuda, Masaaki Nishikawa, Masaki Hojo (Kyoto Univ.)

3J2-2*  GHz surface-wave ultrasound tomography  
○Hayato Takeda, Paul Otsuka, Motonobu Tomoda, Osamu Matsuda, Oliver B. Wright (Hokkaido Univ.)

3J2-3*  Effect of Cavitation Bubbles outside Focal Region on Ultrasonic Heating in High-Intensity Focused 
Ultrasound Exposure by Split-Aperture Transmission  
○Yui Tanaka, Shin-ichiro Umemura, Shin Yoshizawa (Tohoku Univ.)

3J2-4  Non-invasive measurement of temperature elevation inside tumor tissue of living rat induced by 
radiofrequency current heating based on statistical analysis of ultrasonic scattered echoes  
○Michio Takeuchi¹,², Toshihiko Sakai¹, Gabor Andocs²,³, Keizo Takao¹, Ryo Nagaoka¹, Hideyuki Hasegawa¹  
¹(Tateyama Kagaku Industry Co., Ltd., ²Tateyama Machine Co., Ltd., ³Univ. of Toyama)

3J2-5  Optical observation of microbubble behaviors in contrast-enhanced active Doppler ultrasonography  
○Kenji Yoshida, Katsuya Saito, Masaaki Omura, Tadashi Yamaguchi (Chiba Univ.)

11:30-13:00  LUNCH TIME

13:00-13:50  Plenary Talk  
Chair: Takeshi Morita (Univ. of Tokyo)

3PL  Evaluation Method of Materials for Power Ultrasonic Applications  
○Kentaro Nakamura (Tokyo Tech.)

14:00-16:00  Poster Session  
Chair: Kenji Yoshida (Chiba Univ.)

3P1-1*  Carrier dynamics of hopping conduction in high-resistance GaN studied by resonant ultrasound 
spectroscopy  
○Kanta Adachi¹, Hiroyuki Waki¹, Hirotugu Ogii (¹Iwate Univ., ²Osaka Univ.)

3P1-2*  Surface plasmon resonance sensor for ultrasound in the MHz range  
○Shoya Ueno, Hayato Ichihashi, Takumi Fukunaga, Mami Matsukawa (Doshisha Univ.)
3P1-3 Consideration of relationship between crystal structure and coefficient of thermal expansion on Langasite-type piezoelectric single crystals
Yuji Ohashi, Yuui Yokota, Masao Yoshino, Akihiro Yamaji, Shunsuke Kurosawa, Kei Kamada, Hiroki Sato, Satoshi Toyoda, Akira Yoshikawa (Tohoku Univ.)

3P1-4* Improvement of piezoelectric properties in ScAlN film by suppression of highly-energetic-negative-ion bombardment from sputtering target
Shinji Takayanagi1, Rui Kihara2, Takahiko Yanagitani2 (1 Nagoya Inst. Tech., 2 Waseda Univ.)

3P1-5* Effect of Joint to Flexural Wave Propagating in Honeycomb Sandwich Panel
Shotaro Daito, Naoto Wakatsuki, Koichi Mizutani, Tadashi Ebihara (Univ. of Tsukuba)

3P1-6 Piezoelectric Properties and Depolarization Temperatures for CuO or B2O3 doped (Bi0.5Na0.5)TiO3-based Ceramics
Takuya Kujirai, Yuka Takagi, Hajime Nagata, Tadashi Takenaka (Tokyo Univ. of Sci.)

3P1-7* Poling conditions of PbTiO3/TiO2
Kohei Hirakawa, Takumi Hara, Makiko Kobayashi (Kumamoto Univ.)

3P1-8 Active removing of unabsorbed phonon energy in acousto-optic devices
Vladimir Molchanov1, Konstantin Yushkov2, Vassily Gurov1, Alexander Chizhikov2, Alexander Darinskii2 (1 Acousto-Optical Research Center, National University of Science and Technology MISIS, 2 Institute of Crystallography FSR ‘Crystallography and Photonics’, Russian Academy of Sciences)

3P2-1 Laser ultrasonic technique to detect cracks on directed energy deposition (DED) process
Harumichi Sato1, Hisato Ogiso1, Yorihiro Yamashita2, Yoshinori Funada2 (1 AIST, 2 IRII)

3P2-2* Interfacial Stiffness Evaluation of Adhesively Bonded CFRP Joints Based on the Out-Of-Plane Resonance for the Ultrasonic Wave Incidence
Shohei Ito1, Kyota Nakagawa1, Naoki Mori1, Naoki Matsuda2, Yasuaki Furuta2, Takayuki Kusaka2, Masaki Hojo2 (1 Ritsumeikan Univ., 2 Kyoto Univ.)

3P2-3 Creep-induced Nonlinear Acoustics in High Cr Ferritic Heat Resisting Steel Welded Joint
Toshihiro Ohtani1, Tatsuki Miura1, Yutaka Ishii1, Masaaki Tabuchi2, Hiromichi Hongo2 (1 Shonan Inst. of Tech., 2 NIMS)

3P2-4* Forming and controlling audible spot including wide frequency band with two parametric speakers
Takumi Hakamata, Kotaro Tsuchiya, Nobuyuki Endoh (Kanagawa Univ.)

3P2-5* Optimal Subcarrier Design for OFDM in Channels with Nonlinear Distortion
Kazuma Tajima, Koichi Mizutani, Naoto Wakatsuki, Tadashi Ebihara (Univ. of Tsukuba)

3P2-6* Digital Acoustic Communication Scheme Suitable for Parametric Loudspeaker
Riku Fukuda, Tadashi Ebihara, Koichi Mizutani, Naoto Wakatsuki (Univ. of Tsukuba)

3P2-7* Reduction of false detection of multiple reflections caused by attached seashelles in ultrasonic non-contact thickness gauging
Shun Uemae1, Hiroyoshi Yamashita1, Tomoo Sato1, Sayuri Matsumoto2, Kotaro Hoshiba1, Takenobu Tsuchiya1, Nobuyuki Endoh1 (1 Kanagawa Univ., 2 PAR)
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<td>Mechanism of affinity enhanced protein adsorption on bio-nanocapsules studied by viscoelasticity measurement with wireless QCM biosensor</td>
<td>Kentaro Noi¹, Masumi Iijima², Shun'ichi Kuroda¹, Hirotsugu Ogı¹ (¹Osaka Univ., ²Tokyo Univ. of Agric.)</td>
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<td>3P2-13</td>
<td>Laser ultrasonic study on the wave velocity in bone with abnormal collagen crosslinks</td>
<td>Masaki Kuraoka, Tsukasa Nakamura, Takumi Fukunaga, Hirokazu Yasui, Mami Matsukawa (Doshisha Univ.)</td>
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<td>3P2-14</td>
<td>Frequency determination in nondestructive test of semiconductor devices with ultrasound heating</td>
<td>Takuto Matsui₁, Kosuke Tatsumi, Tomohiro Kawashima, Yoshinobu Murakami, Naohiro Hozumi, Toru Matsumoto (¹Toyoohashi Univ. of Tech., ²Hamamatsu Photonics K.K.)</td>
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<td>3P3-1</td>
<td>Power Transmission Characteristics of EWC-SPUDT SAW Filter for Inverter Gate Drive Circuit</td>
<td>Ken Watada¹, Fumiya Kobayashi¹, Ryo Nonaka¹, Shigeoyoshi Goka¹, Shoji Kakio¹, Keiji Wada¹ (¹Tokyo Metropolitan Univ., ²Univ. of Yamanashi)</td>
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<td>3P3-2*</td>
<td>Evaluation wide band high frequency diamond SAW resonator using hetero-epitaxial diamond substrate</td>
<td>Yusuke Kobayashi¹, Yuki Asao², Koji Koyama³, Seongwoo Kim³, Kenya Hashimoto², Shinichi Shikata¹ (¹Kwansei Gakuin Univ., ²Chiba Univ., ³Adamant Namiki Precision Jewel Co., Ltd.)</td>
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<td>3P3-3</td>
<td>Evaluation of low-intensity ultrasonic transducer for oral treatment</td>
<td>Marie Tabaru¹, Kento Fujii¹, Kentaro Nakamura¹, Mutsu Ishikawa², Kazuaki Nishimura³ (¹Tokyo Tech., ²Toin Univ. of Yokohama, ³Tohoku Univ.)</td>
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<td>3P3-4*</td>
<td>Fundamental study on optimization of microchannel structure with respect to wireless PDMS-QCM biosensor</td>
<td>Yu Sato¹, Noriyasu Masumoto¹, Fumihito Kato¹, Hirotsugu Ogı² (¹Nippon Inst. of Tech., ²Osaka Univ.)</td>
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<td>3P3-5</td>
<td>SAW CO sensors based on SnOx organic-like film with poly ethylene glycol</td>
<td>Yung-Yu Chen, Cheng-Hsiu Ho, Ko-Shao Chen (Tatung University)</td>
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<td>3P3-6</td>
<td>Influence of SH-SAW sensor frequency for engine oil degradation evaluation</td>
<td>Kazuki Nakayama, Jun Kondoh (Shizuoka Univ.)</td>
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<td>3P3-7</td>
<td>Vibration analysis of cantilever beam using impedance-loaded SAW sensor and finite element method</td>
<td>Soya Shirai, Jun Kondoh (Shizuoka Univ.)</td>
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<td>3P3-8</td>
<td>Analysis and verification of surface acoustic wave propagation characteristics in cover glass/liquid layer/LiNbO₃ structure</td>
<td>Yota Terakawa, Jun Kondoh (Shizuoka Univ.)</td>
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<td>Enhancement of bitumen recovery from oil sand in alkaline solution using ultrasound and carbon dioxide</td>
<td>Hirokazu Okawa¹, Tomonao Saito¹, Shohei Yasuda¹, Youhei Kawamura¹, Tayfun Babadagli², Takahiro Kato¹, Katsuyasu Sugawara² (¹Akita Univ., ²Univ. of Alberta)</td>
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<td>3P4-2</td>
<td>Orientation control of osteoblast-like cells using ultrasound vibration</td>
<td>Serina Tawa, Naoyuki Taya, Daisuke Koyama (Doshisha Univ.)</td>
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<td>Consideration on Effect of Acoustic Window Material of Tough Hydrophone on the Acoustic Cavitation Bubble Behavior</td>
<td>Nagaya Okada¹, Michihisa Shibai², Shinobu Yamauchi¹, Toshio Sato², Shinichi Takeuchi² (¹Honda Electronics, ²Nihon Inst. of Med. Sci., ³Toin Univ. of Yokohama)</td>
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<td>3P4-4</td>
<td>Classification of Radial Oscillation Characteristics of Acoustic Cavitation Bubbles Measured by Laser Scattering Method</td>
<td>Takanobu Kuroyama (NIT, Gifu College)</td>
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<td>Transient Characteristics of Acoustic Cavitation Noise after Starting Ultrasound Irradiation</td>
<td>Fumitaka Yokoyama, Takanobu Kuroyama (NIT, Gifu College)</td>
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<td>3P4-6</td>
<td>Optical Interferometric Measurement of Vibration Amplitude in High Power Ultrasonic Tool through Vibration-Synchronized Fringe Counting(II) Simplification of the System</td>
<td>Kentaro Nakamura (Tokyo Tech.)</td>
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<td>3P4-7*</td>
<td>Measurement of holding force acting on tabular object in near-field acoustic levitation</td>
<td>Kohei Aono, Manabu Aoyagi (Muroran Inst. of Tech.)</td>
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3P4-8  Liquid Surface Deformation Caused by Acoustic Radiation Force of Focused Ultrasound
  ○Hideyuki Nomura, Masaya Shimomura (Univ. of Electro-Comm.)

3P4-9  Development of 58 kHz compact ultrasonic sound source using a circular plate with circumferential excitation
  ○Takuya Asami, Hikaru Miura (Nihon Univ.)

3P4-10* Study on physical modeling of heat phase adjuster in loop-type thermoacoustic system
  ○Kazuki Shiraki¹, Shin-ichi Sakamoto, Yuya Kurata, Yuto Kawashima, Riku Onishi¹, Yoshiaki Watanabe¹
    (Doshisha Univ.,¹Univ. of Shiga Pref.)

3P4-11* Variable-focus in radial direction in liquid crystal lens using acoustic radiation force
  ○Jessica Onaka, Yuki Harada, Marina Fukui, Daisuke Koyama, Mami Matsukawa (Doshisha Univ.)

3P4-12* Ultrasonic Linear Motor with Quadruped Stator
  ○Yutaro Tanoue, Takeshi Morita (The Univ. of Tokyo)

3P4-13  Multi-manipulation modes of ultrasonic tweezers by DPLUS
  ○Qingyang Liu¹, Kang Chen¹, Junhui Hu¹, Takeshi Morita¹
    (¹Nanjing Univ. of Aeronautics and Astronautics,²The Univ. of Tokyo)

3P5-1* Effect of contact condition of blood vessel wall in thin catheter bending using acoustic radiation force
  ○Junya Takano¹, Yutaro Kobayashi¹, Hitadeta Ushimizu, Kansai Okadome¹, Takashi Mochizuki¹, Kohji Masuda¹
    (¹Tokyo Univ. of A&T,²Medical Ultrasound Laboratory Co., Ltd.)

3P5-2* Detection of Avidin-Biotin Latex Agglutination using Ultrasound Scattering Techniques
  ○Kana Kitao, Tomohisa Norisuye, Hideyuki Nakanishi (Kyoto Inst. of Tech.)

3P5-3* Study on effectiveness of anti-infective system using a planar transducer irradiating low-intensity ultrasound to titanium dioxide particles
  ○Mayu Tominaga¹,² Akio Kaya¹, Naotaka Nitta¹, Yuji Ohta¹ (¹Ochanomizu Univ.,²AIST)

3P5-4* Ultrasound Imaging of Cavitation Using Triplet Pulse Sequence in Bubble-enhanced Ultrasonic Heating
  ○Ikumi Shiozaki, Shin-ichiro Umemura, Shin Yoshizawa (Tohoku Univ.)

3P5-5* Viability variation of T-cells under ultrasound exposure according to adhesion condition with microbubbles
  ○Masakazu Seki¹, Tatsuya Saito¹, Takuya Otsuka¹, Naoya Kajita¹, Takashi Mochizuki¹, Johan Ung¹, Ryo Suzuki¹,
    Kazuo Maruyama¹, Kohji Masuda¹ (¹Tokyo Univ. of A&T,²Medical Ultrasound Laboratory Co., Ltd.,³Teikyo Univ.)

3P5-6* Theoretical analysis of retention distribution of bubble-surrounded cells with tempo-spatial division emission
  ○Takuya Otsuka¹, Masakazu Seki¹, Kiyonobu Nozaki¹, Takumi Chikarashi¹, Ryota Akutsu¹, Johan Ung¹,
    Kazuo Maruyama¹, Ryo Suzuki¹, Kohji Masuda¹ (¹Tokyo Univ. of A&T,²Teikyo Univ.)

3P5-7* Experimental study of damage on vascular endothelial cells according to microbubble concentration and ultrasound exposure
  ○Tatsuya Saito¹, Masakazu Seki¹, Takuya Otsuka¹, Naoya Kajita¹, Yoshitaka Miyamoto², Johan Ung², Kazuo Maruyama¹, Ryo Suzuki¹, Kohji Masuda¹
    (¹Tokyo Univ. of A&T,²Teikyo Univ.)

3P5-8* Experimental Investigation of Effect of Ultrasonic Duty Cycle on Generation of Reactive Oxygen Species for Highly Efficient Sonodynamic Treatment
  ○Kenki Tsukahara, Shin-ichiro Umemura, Shin Yoshizawa (Tohoku Univ.)

3P5-9 Basic study on differentiation of reflection and scattering components by synthetic aperture method using spherically diverging transmit beams
  ○Kazunori Nagata¹, Ryo Nagaoka¹, Jens Erik Wilhjelm³, Hideyuki Hasegawa¹
    (¹Univ. of Toyama,²Technical Univ. Denmark)

3P5-10* Anti-aliasing method for 2D phase-sensitive motion estimator in ultrasound measurement
  ○Michiya Mozumi¹, Ryo Nagaoka¹, Magnus Cinthio³, Hideyuki Hasegawa¹ (¹Univ. of Toyama,³Lund Univ.)

3P5-11 Characteristic analysis on linear regression beamformer
  ○Hideyuki Hasegawa, Ryo Nagaoka (Univ. of Toyama)
3P5-12* Visualization of ultrasound fields inside a protuberance of water generated by an ultrasonic atomizer
○Takeshi Aikawa, Nobuki Kudo (Hokkaido Univ.)

3P5-13 Detection of Fat Area in Living Body Using Ultrasonic Velocity-Change Method
○Yuya Inuzuka, Arata Tsuboi, Hana Sonoda, Tetsuya Matsuyama, Kenji Wada, Koichi Okamoto, Toshiyuki Matsunaka (Osaka Pref. Univ., TU Research Lab.)

3P5-14* Verification of influence of tissue structure on shear wave velocity evaluation
○Daiki Ito, Atsuko Yamada, Takuma Oguri, Kenji Yoshida, Tadashi Yamaguchi (Chiba Univ., GE Healthcare)

3P5-15 Verification of influence of push pulse irradiation condition on shear wave propagation by actual measurement of phantoms
○Minoru Ito, Daiki Ito, Masashi Usumura, Takuma Oguri, Kenji Yoshida, Mikio Suga, Tadashi Yamaguchi (Chiba Univ., GE Healthcare)

3P5-16* Control of ultrasound irradiation on long bone: a simulation study
○Masaya Saeki, Takashi Misaki, Leslie Bustamante, Yoshihiko Nagatani, Ko Chiba, Mami Matsukawa (Doshisha Univ., Kobe City Coll. of Tech., Nagasaki Univ.)

3P5-17 Study of Back Scatter Ultrasound Imaging Based on a Machine Learning Technique Using Numerical Simulation
○Shigeki Okumura, Yoshihiko Nagatani, Shuqiong Wu (MaRI Co., Ltd., Kobe City Coll. of Tech., Kyoto Univ.)

3P5-18* Effect of Shear Wave Propagation on Estimation of Heating Distribution by High-intensity Focused Ultrasound Using Acoustic Radiation Force Imaging
○Hiroki Yabata, Shin-ichiro Umemura, Shin Yoshizawa (Tohoku Univ.)

3P6-1 Sound propagation from continental shelf to arc
○Yoshiaki Tsurugaya, Toshiaki Kikuchi, Koichi Mizutani (Sanyo PT, Natl. Defense Academy, Univ. of Tsukuba)

3P6-2* Improvement of Communication Quality Using Compressed Sensing in Mobile Underwater Acoustic Communication
○Yushi Tabata, Tadashi Ebihara, Hanako Ogasawara, Koichi Mizutani, Naoto Wakatsuki (Univ. of Tsukuba, Natl. Defense Academy)

3P6-3* Numerical Simulation of Underwater Digital Acoustic Communication Using Parabolic Reflector
○Ryotaro Chinone, Takuya Aoki, Tadashi Ebihara, Yuji Sato, Koichi Mizutani, Naoto Wakatsuki (Univ. of Tsukuba)

3P6-4 Study on seafloor surface seismic wave velocity estimation and baleen whale call detection at cabled observatories in Japan Trench Area
○Ryoichi Iwase, Takeshi Nakamura (JAMSTEC, NIED)

16:10-16:55 Ocean acoustics II, Measurement techniques IV
Chair: Takenobu Tsuchiya (Kanagawa Univ.)

3J3-1 Adaptive symbol time adjustment for underwater acoustic communication with nonuniform Doppler shift
○Mitsuyasu Deguchi, Yukihiro Kida, Yoshitaka Watanabe, Takuya Shimura (JAMSTEC)

3J3-2* Comparison of vibrational displacements of piezoelectric devices with polished surface by laser speckle interferometer and laser Doppler vibrometer measurements
○Jing Wang, Yasuaki Watanabe, Takayuki Sato (Tokyo Metropolitan Univ.)

3J3-3* Highly Sensitive Failure Detection of Mechanical Seals Using High-Frequency Acoustic Emission Waves over 1 MHz
○Kenji Otsu, Hiroaki Hasegawa, Shuntaro Machida (Hitachi, Ltd.)

17:00-17:15 CLOSING