

USE2014 Schedule

	Dec. 3 (Wed)	Dec. 4 (Thu)	Dec. 5 (Fri)
9:00			
10:00	<p>10:00 Opening Ceremony</p>	<p>9:10-10:10 2E1-1~4 Measurement Techniques, Nondestructive Evaluation Chair: Mitsutaka Hikita (Kogakuin University)</p>	<p>9:10-10:10 3J1-1~4 High Power Ultrasound, Sonochemistry Chair: Subaru Kudo (Ishinomaki Senshu University)</p>
11:00	<p>10:10-11:10 1J1-1~4 Physical Acoustics, Acousto-Optics I Chair: Iwaki Akiyama (Doshisha University)</p>	<p>10:10-11:10 2E2-1~4 Biomedical Ultrasound I Chair: Mami Matsukawa (Doshisha University)</p>	<p>10:10-11:10 3J2-1~4 Biomedical Ultrasound II Chair: Hideyuki Hasegawa (Tohoku University)</p>
12:00	<p>11:10-12:10 1J2-1~4 Nondestructive Evaluation Chair: Akira Yamada (Tokyo University of Agriculture and Technology)</p>	<p>11:10-11:40 2E3-1~2 High Power Ultrasound, Sonochemistry Chair: Tatsuro Matsuoka (Nagoya University)</p> <p>11:40-12:10 2E4-1~2 Piezoelectric devices Chair: Jun Kondoh (Shizuoka University)</p>	<p>11:10-12:10 3J3-1~3 Biomedical Ultrasound III Chair: Nobuki Kudo (Hokkaido University)</p>
13:00	<p>12:10-13:30 Lunch Time</p>	<p>12:10-13:30 Lunch Time</p>	<p>12:10-13:30 Lunch Time</p>
14:00	<p>13:30-14:20 1PL Plenary Talk I Chao-Nan Xu (Advanced Industrial Science and Technology) Chair: Akira Harata (Kyushu University)</p>	<p>13:30-14:20 2PL Plenary Talk II Kazushi Yamanaka (Tohoku University) Chair: Kentaro Nakamura (Tokyo Institute of Technology)</p>	<p>13:30-14:20 3PL Plenary Talk III Nobuki Kudo (Hokkaido University) Chair: Shin-ichiro Umemura (Tohoku University)</p>
15:00	<p>14:20-16:20 Poster Session 1P1-1~10, 1P2-1~20, 1P3-1~22, 1P4-1, 1P5-1~22 Chair: Koji Masuda (Tokyo University of Agriculture and Technology)</p>	<p>14:20-16:20 Poster Session 2P1-1~10, 2P2-1~21, 2P3-1~8, 2P4-1~9, 2P5-1~16, 2P6-1~16 Chair: Hideyuki Nomura (The University of Electro-Communications)</p>	<p>14:20-16:20 Poster Session 3P1-1~9, 3P2-1~20, 3P4-1~26, 3P5-1~20, 3P6-1~6 Chair: Kyuichi Yasui (Advanced Industrial Science and Technology)</p>
16:00			
17:00	<p>16:20-17:20 1J3-1~4 Piezoelectric Devices Chair: Minoru Kurosawa (Tokyo Institute of Technology)</p>	<p>16:20-17:05 2E5-1~3 Physical Acoustics, Acousto-Optics II, Ocean Acoustics Chair: Oliver B. Wright (Hokkaido University)</p>	<p>16:20-17:05 3J4-1~3 Ocean acoustics Chair: Hiroyuki Hachiya (Tokyo Institute of Technology)</p>
18:00	<p>17:20-18:05 1J4-1~3 Measurement Techniques Chair: Yasuaki Watanabe (Tokyo Metropolitan University)</p>	<p>17:05-17:25 Awards Ceremony</p>	<p>17:05 Closing Ceremony</p>
19:00		<p>18:00-20:00 Banquet</p>	

The 35th Symposium on Ultrasonic Electronics (USE 2014) Program

† Speaker

* Applying to Young Scientists Award

Wednesday, December 3

10:00-10:10 OPENING

10:10-11:10 Physical Acoustics, Acousto-Optics I

Chair: Iwaki Akiyama (Doshisha Univ.)

- 1J1-1*** Development of microscopic photothermal heterodyne interferometric detection method combined with a micro-HPLC for highly sensitive analysis **1**
Makoto Fukuma[†], Miki Isoda, Akira Harata (Kyushu Univ.)
- 1J1-2*** Visualization of acoustic evanescent waves by photoelastic method **3**
Takuto Sakiyama[†], Shohei Shibata, Yoshinori Ike, Ken Yamamoto (Kansai Univ.)
- 1J1-3*** Ripplon resonance in confined liquid surface **5**
Toshiyuki Koga[†], Shujiro Mitani, Keiji Sakai (Univ. of Tokyo)
- 1J1-4** Cross-section profile of carrier recombination properties in the multiple junction solar cell using piezoelectric photo thermal spectroscopy **7**
Taishi Sugimoto[†], Taketo Aihara, Atsuhiko Fukuyama, Tetsuo Ikari (Univ. of Miyazaki)

11:10-12:10 Nondestructive Evaluation

Chair: Akira Yamada (Tokyo Univ. of A&T)

- 1J2-1*** Development of SV-wave point-focusing electromagnetic acoustic transducer **9**
Takashi Takishita[†], Kazuhiro Ashida, Nobutomo Nakamura, Hirotsugu Ogi, Masahiko Hirao (Osaka Univ.)
- 1J2-2*** Closed-crack imaging and scattering behavior analysis using confocal subharmonic phased array **11**
Azusa Suagawara[†], Kentaro Jinno, Yoshikazu Ohara, Kazushi Yamanaka (Tohoku Univ.)
- 1J2-3*** Study on the non-contact acoustic imaging method for concrete structures after the asphalt pavement **13**
Itsuki Uechi^{1†}, Tsuneyoshi Sugimoto¹, Noriyuki Utagawa², Kageyoshi Katakura³
(¹Toin Univ. of Yokohama; ²Sato Kogyo; ³Meitoku Eng., Lab.)
- 1J2-4*** Noise reduction in ultrasonic computerized tomography by two-dimensional filtered projection data **15**
Yoko Norose[†], Koichi Mizutani, Naoto Wakatsuki, Tadashi Ebihara (Univ. of Tsukuba)

12:10-13:30 LUNCH TIME

13:30-14:20 Plenary Talk I

Chair: Akira Harata (Kyushu Univ.)

- 1PL** Mechanoluminescent materials and their applications **17**
Chao-Nan Xu (AIST)

14:20-16:20 Poster Session

Chair: Koji Masuda (Tokyo Univ. of A&T)

- 1P1-1 *** Picosecond ultrasound for studying anomalous temperature dependence of elastic constants of the negative-thermal-expansion zirconium tungstate **19**
Shunsuke Fukazawa[†], Akira Nagakubo, Hirotsugu Ogi, Masahiko Hirao (Osaka Univ.)
- 1P1-2*** Characteristic change of sol-gel composites by PZT sol-gel phase in the high temperature environment **21**
Shota Fujimoto[†], Takao Namihira, Kazuki Iwata, Makiko Kobayashi (Kumamoto Univ.)

1P1-3*	High-temperature and high-power piezoelectric characteristics of bismuth layer-structured ferroelectric ceramics	23
	Yoshitsugu Yamamoto [†] , Shun Endo, Hajime Nagata, Tadashi Takenaka (Tokyo Univ. of Sci.)	
1P1-4	Non-contact air-coupled ultrasonic evaluation of materials	25
	Junjie chang ^{1,2†} , Wei qiang ¹ , Chao lu ¹ (¹ Nanchang Hangkong Univ.; ² Japan Probe)	
1P1-5	Detection of acoustic oscillation in MOSFET using piezoresistance effect	27
	Kazuhide Abe [†] (Toshiba Corp.)	
1P1-6	Behavior of elastic and dielectric modes in electromechanical coupling system from the viewpoint of comparing to conventional quantum mechanics	29
	Michio Ohki [†] (Natl. Defense Academy)	
1P1-7	Ultrasonic properties of a rubber toughened structural adhesive	31
	Shinobu Sugasawa [†] , Takahiro Ando, Shigeru Akiyama, Toshiaki Iwata (Natl. Maritime Res. Inst.)	
1P1-8*	Accuracy of rayleigh wave analysis using the moving particle simulation method	33
	Tsubasa Nakano [†] , Masahiro Sato, Takayuki Haruki (Univ. of Toyama)	
1P1-9	Flat bands in one-dimensional solid-fluid phononic crystals	35
	Seiji Mizuno [†] (Hokkaido Univ.)	
1P1-10	Characterization of Poly-Si nanowire array embedded in ALD-Al₂O₃ by photoacoustic spectroscopy	37
	Hisashi Miyazaki ^{1†} , Jun Morimoto ¹ , Shinya Kato ² , Tatsuya Yamazaki ³ , Shinsuke Miyajima ³ (¹ Natl. Defense Academy; ² JST; ³ Tokyo Inst. of Tech.)	
1P2-1	Development and application of miniature high sensitive air probe	39
	Masakazu Takahashi ^{1†} , Akira Sakai ¹ , Yukio Ogura ¹ , Hideo Nishino ² (¹ Japan Probe; ² Univ. of Tokushima)	
1P2-2	Energy-harvesting dynamo structure using both swing and rotation	41
	Toru Haremaki [†] , Takahiro Nishi, Mitsutaka Hikita (Kogakuin Univ.)	
1P2-3	Study on movement detection for care environment using precise ultrasonic distance measurement - Comparison between ultrasonic wave and sound wave at upper vocal register -	43
	Yukari Kaneta [†] , Takeo Sato, Mitsutaka Hikita (Kogakuin Univ.)	
1P2-4*	Ultrasonic visualisation by simulator and application for array probe	45
	Yuusuke Tanaka [†] , Kazuyuki Kikuchi, Katsumi Ohira, Yukio Ogura (Japan Probe)	
1P2-5	Study on no-power-supply drive for endoscope capsule by AC magnetic field -Investigation of addition to no-power-supply steerage-	47
	Kaihei Miyazaki [†] , Tomohiro Sakata, Mitsutaka Hikita (Kogakuin Univ.)	
1P2-6	Fundamental study of molten pool depth measurement method using an ultrasonic phased array system	49
	Hirohisa Mizota [†] , Yoshiaki Nagashima, Takeshi Obana (Hitachi)	
1P2-7	Study on methods of voltage up-converter for energy-harvesting dynamo	51
	Takahiro Nishi [†] , Toru Haremaki, Mitsutaka Hikita (Kogakuin Univ.)	
1P2-8*	Measuring thickness of thin film whose sound velocity is unknown utilizing acoustic resonant spectroscopy	53
	Takamasa Saito [†] , Iwao Matsuya, Kiyoshi Ohnuma, Takashi Kuwahara, Mizuki Kondo, Ikuo Ihara (Nagaoka Univ. of Tech.)	
1P2-9*	Basic investigation on development of ultrasonic sensor for tape detection on banknotes	55
	Masashi Saito [†] , Eiji Tai, Takashi Mano, Takaaki Asada (Murata Mfg.)	
1P2-10	No-power-supply steerage for endoscope capsule by combination of DC magnetic field and ultrasonic beacon	57
	Tomohiro Sakata [†] , Kaihei Miyazaki, Mitsutaka Hikita (Kogakuin Univ.)	
1P2-11*	Spatial modulation measurement by the SFCW vibro - Doppler measurement system	59
	Amane Kaneko [†] , Takashi Miwa (Gunma Univ.)	

1P2-12*	Creep-induced nonlinear ultrasonic changes in ASME Gr. 122 heat resistant steel welded joint	61
	Takumi Honma ^{1†} , Yutaka Ishii ¹ , Toshihiro Ohtani ¹ , Masahiko Tabuchi ² , Hiromichi Hongo ² , Masahiko Hirao ³ (¹ Shonan Inst. of Tech.; ² NIMS; ³ Osaka Univ.)	
1P2-13	Rheology measurement under extraordinary environment with open-type EMS viscometer	63
	Masanori Yasuda ^{1†} , Hajime Arimoto ¹ , Yasuhide Hara ¹ , Miki Nakamura ¹ , Taichi Hirano ² , Keiji Sakai ² (¹ Kyoto Electronics Mfg.; ² Univ. of Tokyo)	
1P2-14*	Defect size estimation in billet from profile of time of flight using ultrasonic transmission method with linear scanning	65
	Ryusuke Miyamoto [†] , Koichi Mizutani, Tadashi Ebihara, Naoto Wakatsuki (Univ. of Tsukuba)	
1P2-15	Estimation of water stress of plant by vibration analysis of leaf with high speed camera	67
	Motoaki Sano ^{1†} , Takuya Anzai ¹ , Yutaka Nakagawa ¹ , Tsuneyoshi Sugimoto ¹ , Takashi Shirakawa ¹ , Kaoru Yamagishi ¹ , Takeyuki Ohdaira ¹ , Sakae Shibusawa ² (¹ Toin Univ. of Yokohama; ² Tokyo Univ. of A&T)	
1P2-16*	Evolution of nonlinear ultrasonics and microstructural change during fatigue in metal	69
	Yutaka Ishii ^{1†} , Takumi Honma ¹ , Toshihiro Ohtani ¹ , Masayoshi Nakaniwa ² , Masayuki Kamaya ³ (¹ Shonan Inst. of Tech.; ² Nippon Steel & Sumikin Tech.; ³ Inst. of Nuclear Safety System, Incorporated)	
1P2-17*	Evaluation of specific binding behavior between proteins using higher-order-mode frequencies measured by RAMNE-Q biosensors	71
	Tomohiro Shagawa [†] , Hiroomi Torii, Fumihito Kato, Hirotsugu Ogi, Masahiko Hirao (Osaka Univ.)	
1P2-18	Study on estimation of volume water content in grove soil using handheld sound source and sensors	73
	Takashi Shirakawa ^{1†} , Yutaka Nakagawa ¹ , Takeyuki Ohdaira ¹ , Kaoru Yamagishi ¹ , Tsuneyoshi Sugimoto ¹ , Motoaki Sano ¹ , Sakae Shibusawa ² (¹ Toin Univ. of Yokohama; ² Tokyo Univ. of A&T)	
1P2-19	Harmonic imaging of thermal fatigue cracks of several tens nm gap in glass plates	75
	Koichiro Kawashima ^{1,2†} , Kouichi Sekino ³ (¹ Ultrasonic Mat. Diag. Lab.; ² Nagoya Industrial Sci. Res. Inst.; ³ Kanto Gakuin Univ.)	
1P2-20	Sedimentation dynamics of concentrated silica suspensions by means of dynamic ultrasound scattering method	77
	Kazuki Sugita [†] , Hideyuki Nakanishi, Tomohisa Norisuye, Qui Tran-Cong-Miyata (Kyoto Inst. of Tech.)	
1P3-1	Second overtone mode polarization inverted HBAR consisting of (001)/(00-1) PbTiO₃ epitaxial thin films	79
	Takahiko Yanagitani ^{1†} , Katsuyoshi Katada ¹ , Masashi Suzuki ¹ , Kiyotaka Wasa ² (¹ Nagoya Inst. of Tech.; ² Yokohama City Univ.)	
1P3-2*	Second overtone mode (0001)/(000-1) ScAlN multilayer FBARs fabricated by anode RF bias deposition	81
	Masashi Suzuki [†] , Takahiko Yanagitani (Nagoya Inst. of Tech.)	
1P3-3*	Acoustic properties of co-doped AlN thin films at low temperatures studied by picosecond ultrasonics	83
	Akira Nagakubo ^{1†} , Mari Arita ¹ , Tsuyoshi Yokoyama ² , Satoru Matsuda ² , Masanori Ueda ² , Hirotsugu Ogi ¹ , Masahiko Hirao ¹ (¹ Osaka Univ.; ² Taiyo Yuden)	
1P3-4	Development of matrix array ultrasonic transducer using KNbO₃ piezoelectric films	85
	Mutsuo Ishikawa ^{1†} , Mizuki Seino ¹ , Akito Endo ² , Takahisa Shiraishi ³ , Minoru Kurosawa ³ , Hiroshi Funakubo ³ (¹ Toin Univ. of Yokohama; ² Kishu Giken Kogyo; ³ Tokyo Inst. of Tech.)	
1P3-5	Sputter deposition of ScAlN thin films using a Sc-Al alloy target	87
	Masahiro Sumisaka ^{1†} , Satoshi Fujii ¹ , Gonbin Tang ^{1,2} , Yu Suzuki ³ , Shohei Otomo ³ , Tatsuya Omori ¹ , Ken-ya Hashimoto ¹ (¹ Chiba Univ.; ² Shanghai Jiatong Univ.; ³ Furuya Metal)	
1P3-6	Love-type surface acoustic wave on Y-X LiTaO₃ with amorphous Ta₂O₅ thin film	89
	Shoji Kakio [†] , Haruka Fukasawa, Keiko Hosaka (Univ. of Yamanashi)	
1P3-7*	Propagation characteristics of SH-wave in c-axis parallel oriented ZnO film/silica glass pipe structure with liquid loading	91
	Shoko Hiyama ^{1†} , Takahiko Yanagitani ² , Shinji Takayanagi ¹ , Mami Matsukawa ¹ (¹ Doshisha Univ.; ² Nagoya Inst. of Tech.)	

1P3-8	A circular array transducer for photoacoustic imaging by using piezoelectric single crystal PMN-PZT	93
	Yonggang Cao ^{1†} , Kanglyeol Ha ¹ , Moojoon Kim ¹ , Hyunwook Kang ¹ , Jung-Hwan Oh ¹ , Jungsoon Kim ² (¹ Pukyong Natl. Univ.; ² Tongmyong Univ.)	
1P3-9*	Development of friction drive MEMS rotary actuator using multilayer piezoelectric element	95
	Hirozumi Oku [†] , Masaki Tatani, Minami Takato, Ken Saito, Fumio Uchikoba (Nihon Univ.)	
1P3-10	Study on ultrasonic motor to achieve simultaneously both X, Y movements and Θ rotation	97
	Toshiaki Sakayachi [†] , Yusuke Nagira, Mitsutaka Hikita (Kogakuin Univ.)	
1P3-11	Temperature compensation of ball SAW sensor by two-frequency measurement using undersampling	99
	Toshihiro Tsuji [†] , Toru Oizumi, Nobuo Takeda, Shingo Akao, Yusuke Tsukahara, Kazushi Yamanaka (Tohoku Univ.)	
1P3-12	Capture of nano particle by using ultrasonic nebulizing	101
	Jungsoon Kim ¹ , Jihee Jung ² , Minkun Bae ² , Moojoon Kim ² , Seonae Hwangbo ³ , Mincheol Chu ^{3†} (¹ Tongmyong Univ.; ² Pukyong Natl. Univ.; ³ Korea Res. Inst. of Standards and Sci.)	
1P3-13*	Probe with three degree-of-freedom for ultrasonic test using longitudinal and shear waves	103
	Masafumi Aoyanagi [†] , Naoto Wakatsuki, Koichi Mizutani, Tadashi Ebihara (Univ. of Tsukuba)	
1P3-14*	A study for high-sensitive and wideband FET-Based ultrasound receiver directly driven by piezoelectric effect	105
	Hiroki Makino [†] , Zhu Jing, Norio Tagawa (Tokyo Met. Univ.)	
1P3-15	Modeling of symmetric boundary conditions of free vibration problems for FD-TD analysis with staggered grids with collocated grid points of velocities	107
	Takashi Yasui ^{1†} , Koji Hasegawa ² , Koichi Hirayama ¹ (¹ Kitami Inst. of Tech.; ² Muroran Inst. of Tech.)	
1P3-16	Piezoelectric oscillation circuit analyses in consideration of non-linear properties	109
	Yasuaki Watanabe (Tokyo Met. Univ.)	
1P3-17	Energy trapping analysis of beveled quartz resonators with finite element method	111
	Yung-Yu Chen ^{1†} , Yen-Ting Lai ¹ , Shih-Yung Pao ² (¹ Tatung Univ.; ² TXC Corp.)	
1P3-18*	Insertion position effect of additional quartz resonator on improvement of phase noise in crystal oscillator	113
	Ryou Suzuki [†] , Takayuki Sato, Yasuaki Watanabe (Tokyo Met. Univ.)	
1P3-19	Generation mechanisms of 3rd order nonlinear signals of SAW devices	115
	Ryo Nakagawa ^{1,2} , Takanao Suzuki ^{1†} , Hiroshi Shimizu ¹ , Haruki Kyoya ¹ (¹ Murata Mfg.; ² Chiba Univ.)	
1P3-20*	Generation mechanisms of 2nd order nonlinear signals of SAW devices and suppression method of them	117
	Ryo Nakagawa ^{1,2†} , Haruki Kyoya ¹ , Hiroshi Shimizu ¹ , Takashi Kihara ¹ (¹ Murata Mfg.; ² Chiba Univ.)	
1P3-21*	Considerations on nonlinearity measurement with high signal-to-noise ratio for RF SAW/BAW devices	119
	Ryosuke Kodaira [†] , Tatsuya Omori, Ken-ya Hashimoto (Chiba Univ.)	
1P3-22	On-wafer measurement of power durability for surface acoustic wave devices	121
	Shunsuke Ohara [†] , Tatsuya Omori, Kenya Hashimoto (Chiba Univ.)	
1P4-1	Study of a stack made by a 3D printer in the thermoacoustic system	123
	Teruyuki Kozuka ^{1†} , Kyuichi Yasui ¹ , Masaki Yasuoka ¹ , Kazumi Kato ¹ , Shin-ichi Sakamoto ² (¹ AIST; ² Univ. of Shiga Pref.)	
1P5-1	Frequency dependence of acoustically stimulated electromagnetic response of bones	125
	Kakeru Watanabe ^{1†} , Hisato Yamada ¹ , Kenji Ikushima ¹ , Nobuo Niimi ² , Yoshitsugu Kojima ² (¹ Tokyo Univ. of A&T; ² NIPPON SIGMAX)	
1P5-2	Numerical simulations of piezoelectric effect under ultrasound irradiation: For analysis of piezoelectric effect of bone	127
	Atsushi Hosokawa [†] (Akashi Natl. Coll. Tech.)	

1P5-3	Two-wave propagation in <i>in vitro</i> swine distal ulna	129
	Isao Mano ^{1†} , Kaoru Horii ² , Mami Matsukawa ¹ , Takahiko Otani ¹ (¹ Doshisha Univ.; ² OYO Electric)	
1P5-4*	Effects of circumferential wave on fast and slow wave propagation in the human radius model	131
	Takuma Hachiken ^{1†} , Toshiho Hata ¹ , Yuka Matsuura ¹ , Isao Mano ¹ , Yoshiki Nagatani ² , Mami Matsukawa ¹ (¹ Doshisha Univ.; ² Kobe City Coll. of Tech.)	
1P5-5	Determining fast and slow ultrasound waves in cancellous bone using frequency domain interferometry : Application to simulation data	133
	Hirofumi Taki ^{1†} , Yoshiki Nagatani ^{2,3} , Mami Matsukawa ⁴ , Toru Sato ¹ (¹ Kyoto Univ.; ² Kobe City Coll. of Tech.; ³ CNRS; ⁴ Doshisha Univ.)	
1P5-6	Numerical investigation of the effect of incoherence on fast wave generation in cancellous bone	135
	Yoshiki Nagatani ^{1,3†} , Hirofumi Taki ² , Guillaume Haïat ³ , Mami Matsukawa ⁴ (¹ Kobe City Coll. of Tech.; ² Kyoto Univ.; ³ CNRS; ⁴ Doshisha Univ.)	
1P5-7	Propagation characteristics of the bone-conducted ultrasound in the living human head: Individuality of the propagation delay	137
	Takuya Hotehama [†] , Seiji Nakagawa (AIST)	
1P5-8	Acoustic aspects of amplitude-modulated bone-conducted ultrasonic hearing	139
	Kazuhito Ito [†] , Seiji Nakagawa (AIST)	
1P5-9	Development of a bone-conducted ultrasonic hearing aid for the profoundly deaf: Assessments of the modulation type with regard to monosyllable articulation and confusion analyses	141
	Seiji Nakagawa ^{1†} , Yuko Okubo ¹ , Takuya Hotehama ¹ , Takayuki Kagomiya ^{1,2} (¹ AIST; ² NINJAL)	
1P5-10*	A novel automatic first-arrival picking method for ultrasound sound speed tomography	143
	Xiaolei Qu ^{1†} , Takashi Azuma ¹ , Hirofumi Nakamura ¹ , Haruka Imoto ¹ , Satoshi Tamano ² , Shu Takagi ¹ , Ichiro Sakuma ¹ , Yoichiro Matsumoto ¹ (¹ Univ. of Tokyo; ² Tohoku Univ.)	
1P5-11	Transducer elements position compensation in a ring array USCT system	145
	Satoshi Tamano ^{1†} , Takashi Azuma ² , Haruka Imoto ² , Shu Takagi ² , Shin-ichiro Umemura ¹ , Yoichiro Matsumoto ² (¹ Tohoku Univ.; ² Univ. of Tokyo)	
1P5-12*	Pulsatile variation of the chick extraembryonic arterial bifurcation observed by ultrasound and optical microscope	147
	Gicheol Ra ^{1†} , Kweon-Ho Nam ¹ , Juho Kim ¹ , Dong-Guk Paeng ^{1,2} (¹ Dept. of Ocean System Eng.; ² Jeju Natl. Univ.)	
1P5-13*	Simulation analysis of high frame rate and high quality photoacoustic computed tomography using coded excitation	149
	Masataka Azuma ^{1†} , Haichong K. Zhang ² , Kengo Kondo ¹ , Takeshi Namita ¹ , Makoto Yamakawa ¹ , Tsuyoshi Shiina ¹ (¹ Kyoto Univ.; ² Johns Hopkins Univ.)	
1P5-14*	Detection of solid tumor under laser treatment with high-resolution photoacoustic imaging	151
	Van Phuc Nguyen [†] , Kanglyeol Ha, Junghwan Oh, Hyun Wook Kang (Pukyong Natl. Univ.)	
1P5-15*	Acoustic attenuation of rat liver measured by high frequency pulsed ultrasound	153
	Kenji Yoshida ^{1†} , Kenta Inoue ¹ , So Irie ¹ , Mamou Jonathan ² , Hitoshi Maruyama ¹ , Tadashi Yamaguchi ¹ (¹ Chiba Univ.; ² Lizzi Center for Biomedical Eng.)	
1P5-16*	Micro-brillouin scattering study on the effect of water on wave velocity in cortical bone	155
	Yuki Imoto [†] , Hiroko Tsuneda, Shinji Takayanagi, Mami Matsukawa (Doshisha Univ.)	
1P5-17*	Effect of material properties of cancellous bone on fast and slow wave velocities	157
	Satoshi Kawasaki ^{1†} , Daiki Shirotani ¹ , Hata Toshiho ¹ , Nagatani Yoshiki ² , Mami Matsukawa ¹ (¹ Doshisha Univ.; ² Kobe City Coll. of Tech.)	
1P5-18*	Characterization of carbon black added liquid target used in laser-induced stress wave devices	159
	Shunsuke Orisaka [†] , Keisuke Hata, Koji Aizawa (Kanazawa Inst. of Tech.)	
1P5-19	Apoptosis induction by aluminum phthalocyanine tetrasulfonate-based photodynamic therapy in HL-60 cells	161
	Yumiko Iwase ^{1†} , Nagahiko Yumita ¹ , Nishi Koji ¹ , Hiroyuki Kuwahara ¹ , Toshio Hukai ¹ , Toshihiko Ikeda ¹ , Shin-ichiro Umemura ² (¹ Yokohama Coll. of Pharm.; ² Tohoku Univ.)	

*For the presentation of 1P5-19 the first author has been replaced by Dr. Yumita in advance.

1P5-20*	Role of adhesive cell proteins in the gene transfer using LIESW Takayasu Yanagisawa [†] , Mieko Kogi, Shunsuke Orisaka, Koji Aizawa (Kanazawa Inst. of Tech.)	163
1P5-21	Sonodynamically-Induced cytotoxicity by rose bengal derivative and microbubbles in isolated sarcoma 180 cells Nami Sugita ^{1†} , Mami Hosokawa ² , Naoki Sunaga ² , Yumiko Iwase ² , Nagahiko Yumita ² , Toshihiko Ikeda ² , Shin-ichiro Umemura ³ (¹ JBIC; ² Yokohama Coll. of Pharm.; ³ Tohoku Univ.)	165
1P5-22	Quantitative assessment of reactive oxygen sonochemically generated by cavitation bubbles Jun Yasuda [†] , Takuya Miyashita, Kei Taguchi, Shin Yoshizawa, Shin-ichiro Umemura (Tohoku Univ.)	167
16:20-17:20 Piezoelectric Devices		
Chair: Minoru Kurosawa (Tokyo Inst. of Tech.)		
1J3-1*	Study on optimal parameter for evaluating performance of targeted microbubbles using quartz crystal microbalance Ryosuke Shimoya ^{1†} , Yasuhiro Yokoi ¹ , Kenji Yoshida ^{1,2} , Yoshiaki Watanabe ¹ (¹ Doshisha Univ.; ² Chiba Univ.)	169
1J3-2*	Effect of particle size of piezoelectric powder phase on sol-gel composites Mina Sakuragi ^{1†} , Keisuke Kimoto ² , Makoto Matsumoto ² , Makiko Kobayashi ² (¹ Sojo Univ.; ² Kumamoto Univ.)	171
1J3-3	Ultrasonic stimulation equipment for aquaculture Yohachi(John) Yamashita [†] , Hiroki Sugiura, Hayato Sasaki, Tomoaki Karaki (Toyama Pref. Univ.)	173
1J3-4	Solidity mounted plate wave resonator with wide bandwidth using 0-th shear horizontal mode in LiNbO₃plate Michio Kadota, Shuji Tanaka (Tohoku Univ.)	175
17:20-18:05 Measurement Techniques		
Chair: Yasuaki Watanabe (Tokyo Met. Univ.)		
1J4-1*	Study on nucleation-fibrillation dynamics of Aβ peptides by TIRFM-QCM Hiroki Hamada ^{1†} , Kentaro Noi ² , Hirotsugu Ogi ¹ , Hisashi Yagi ³ , Yuji Goto ¹ , Masahiko Hirao ¹ (¹ Osaka Univ.; ² Kumamoto Univ.; ³ Tottori Univ.)	177
1J4-2	Analysis of spatio-temporal radiated acoustic field from finite aperture transducer - Comparison of FDTD numerical computations and Rayleigh integral method - Akira Yamada ^{1†} , Yoshio Udagawa ² (¹ Tokyo Univ. of A&T; ² Imaging Supersonic Lab.)	179
1J4-3*	Evaluations of aptamer-protein interactions using wireless-electrodeless QCM biosensors Hiroomi Torii ^{1†} , Masaki Yamato ¹ , Kentaro Noi ² , Takashi Matsuzaki ¹ , Hirotsugu Ogi ¹ , Tetsuo Minamino ¹ , Masahiko Hirao ² (¹ Osaka Univ.; ² Kumamoto Univ.)	181

Thursday, December 4

9:10-10:10 Measurement Techniques, Nondestructive Evaluation

Chair: Mitsutaka Hikita (Kogakuin Univ.)

2E1-1*	Watching arbitrary acoustic whispering-gallery modes in the GHz range using ultrashort light pulses Sylvain Mezil [†] , Paul H. Otsuka, Shogo Kaneko, Oliver B. Wright, Motonobu Tomoda, Osamu Matsuda (Hokkaido Univ.)	183
2E1-2	Application of acoustic delay-line based on wedge waves Po-Hsien Tung [†] , Wen-Chi Wang, Che-Hua Yang (Natl. Taipei Univ. of Tech.)	185
2E1-3	Resonance of the circumferential shear horizontal wave converted from the T(0,1) mode guided wave at an axial notch Hideo Nishino ^{1†} , Saygo Ishii ¹ , Takashi Furukawa ² (¹ Tokushima Univ.; ² Japan Power Eng. and Inspection Corp.)	187

2E1-4*	High temperature immersion ultrasonic probe development using PbTiO₃/PZT ultrasonic transducer	189
	Taiga Kibe [†] , Takuo Inoue, Takao Namihira, Makiko Kobayashi (Kumamoto Univ.)	
	10:10-11:10 Biomedical Ultrasound I Chair: Mami Matsukawa (Doshisha Univ.)	
2E2-1*	High frame rate ultrasound flow vectorgraphy: On the design of robust estimators	191
	Billy Y. S. Yiu [†] , Alfred. C. H. Yu (Univ. of Hong Kong)	
2E2-2	Shear elastic wave imaging using ultrasound color flow imaging	193
	Yoshiki Yamakoshi [†] , Toshihiro Kasahara, Tomohiro Iijima (Gunma Univ.)	
2E2-3*	Photoacoustic image quality enhancement by estimating mean sound-speed based on optimum focusing	195
	Bing Cong [†] , Kengo Kondo, Makoto Yamakawa, Tsuyoshi Shiina (Kyoto Univ.)	
2E2-4*	Quantitative measurement of high intensity focused ultrasound pressure field by optical phase contrast method applying non-continuous phase unwrapping algorithm	197
	Mohd Syahid [†] , Seiji Oyama, Jun Yasuda, Shin Yoshizawa, Shin-ichiro Umemura (Tohoku Univ.)	
	11:10-11:40 High Power Ultrasound, Sonochemistry	
	Chair: Tatsuro Matsuoka (Nagoya Univ.)	
2E3-1*	A traveling wave ultrasonic motor using polymer-based vibrator	199
	Jiang Wu [†] , Yosuke Mizuno, Marie Tabaru, Kentaro Nakamura (Tokyo Inst. of Tech.)	
2E3-2*	Study on ultrasonically accelerated aggregation phenomenon of Aβ peptides based on cavitation-bubble dynamics	201
	Kichitaro Nakajima [†] , Kanta Adachi ¹ , Kentaro Noi ² , Hisashi Yagi ³ , Yuji Goto ¹ , Hirotsugu Ogi ¹ , Masahiko Hirao ¹ (¹ Osaka Univ.; ² Kumamoto Univ.; ³ Tottori Univ.)	
	11:40-12:10 Piezoelectric devices	
	Chair: Jun Kondoh (Shizuoka Univ.)	
2E4-1*	Vector contrast imaging of surface acoustic waves by local electric field probes	203
	A. Habib ¹ , M. Pluta ² , U. Amjad ³ , A. Shelke ^{4†} , U. Pietsch ¹ , T. Kundu ³ , R. Wannemacher ⁵ , W. Grill ² (¹ Univ. of Siegen; ² Univ. of Leipzig; ³ Univ. of Arizona; ⁴ Indian Inst. of Tech. Guwahati; ⁵ Inst. Madrileño de Estudios Avanzados)	
2E4-2*	Directional spraying systems employing surface acoustic wave resonators	205
	Shun Sugimoto, Motoaki Hara [†] , Hiroyuki Oguchi, Hiroki Kuwano (Tohoku Univ.)	
	12:10-13:30 LUNCH TIME	
	13:30-14:20 Plenary Talk II	
	Chair: Kentaro Nakamura (Tokyo Inst. of Tech.)	
2PL	Ball SAW sensor and its applications	207
	Kazushi Yamanaka (Tohoku Univ.)	
	14:20-16:20 Poster Session	
	Chair: Hideyuki Nomura (The Univ. of Electro-Comm.)	
2P1-1 *	Elastic anomaly and aging of new type of incommensurate phase transition in ferroelectric barium sodium niobate	209
	Yohanes Christy [†] , Kazuya Matsumoto, Seiji Kojima (Univ. of Tsukuba)	
2P1-2*	Study of uniaxial relaxor ferroelectrics Sr_xBa_{1-x}Nb₂O₆ using Brillouin scattering	211
	Masaru Suzuki ^{1†} , Kazuya Matsumoto ¹ , J. Dec ² , T. Łukasiewicz ³ , W. Kleemann ⁴ , Seiji Kojima ¹ (¹ Univ. of Tsukuba; ² Univ. of Silesia; ³ Inst. of Electronic Materials Tech.; ⁴ Duisburg-Essen Univ.)	
2P1-3	Ageing behaviors of LiB positive electrode by characterizing mechanical properties	213
	Syogo Hatake ^{1†} , Masamichi Sakaino ¹ , Yong Sun ¹ , Fumio Morimoto ² , Kenta Kirimoto ³ (¹ Kyushu Inst. of Tech.; ² Kyushu Kyoritsu Univ.; ³ Kitakyushu Natl. Coll. of Tech.)	
2P1-4	Evaluation of 2D viscosity with disk-type EMS method	215
	M. Hosoda ^{1†} , T. Fujimoto ¹ , Y. Shimokawa ² , T. Hirano ² , K. Sakai ² (¹ Tokyo Denki Univ.; ² Univ. of Tokyo)	

2P1-5	Experimental investigation of surface acoustic waves in two-dimensional SiO₂/LiNbO₃ layered phononic crystal	217
	Jyun-Hua Jhou [†] , Jia-Hong Sun (Chang Gung Univ.)	
2P1-6	Optimization of the structure of 1-3 piezocomposite materials to maximize the pulse-echo response of an underwater acoustic transducer	219
	Seonghun Pyo, Yongrae Roh [†] (Kyungpook Natl. Univ.)	
2P1-7*	Ultrasonic wave propagation in [210] direction in silicon	221
	Sangjin Yun [†] , Hye-Jeong Kim, Young H. Kim (Korea Sci. Academy of KAIST)	
2P1-8*	Intravascular ultrasonic-photoacoustic (IVUP) imaging for Ex Vivo lymph node detection and characterization in pig esophagus	223
	N. Q. Bui ^{1†} , T. H. Nguyen ¹ , H. Shin ¹ , K. K. Hlaing ¹ , H. H. Kim ² , H. W. Kang ¹ , J. Oh ¹ (¹ Pukyong Natl. Univ.; ² The Catholic Univ. of Korea Coll.)	
2P1-9	Design and visualization of ultrasonic wave in phononic structure for efficient energy transmission	225
	Kazuya Tsubouchi [†] , Atsushi Ishikawa, Kazuhiro Fujimori, Kenji Tsuruta (Okayama Univ.)	
2P1-10	Imaging localized phonon fields in phononic crystal slabs	227
	P. H. Otsuka ^{1†} , R. Chinbe ¹ , S. H. Kim ² , M. Tomoda ¹ , O. Matsuda ¹ , I. A. Veres ³ , Y. Tanaka ¹ , H. S. Jeon ² , O. B. Wright ¹ (¹ Hokkaido Univ.; ² Seoul Natl. Univ.; ³ Res. Center for Non Destructive Testing)	
2P2-1	Small target detection in shallow water using air-borne laser	229
	Young-Nam NA [†] , Hyoungrok KIM, Changbong CHO (Agency for Defense Dev.)	
2P2-2*	Polygonal buffer rods having irregular cross-sectional shapes for improving the SNR in ultrasonic pulse-echo measurements	231
	Farhana Mohd Foudzi [†] , Ikuo Ihara (Nagaoka Univ. of Tech.)	
2P2-3*	Design of the radiation beam pattern of an ultrasonic transducer by electrode shading technique	233
	Yeonsue Park, Chulhong Jang, Yongrae Roh [†] (Kyungpook Natl. Univ.)	
2P2-4	Ultrasonic characterization for the influences of microstructure and graphite size in cast irons	235
	Jia-Hang Theng [†] , Che-Hua Yang (Natl. Taipei Univ. of Tech.)	
2P2-5	Material characterization of zircaloy tubes at elevated temperatures using laser ultrasound technique	237
	Sheng-Po Tseng [†] , Cheng-Hung Yeh, Che-Hua Yang (Natl. Taipei Univ. of Tech.)	
2P2-6	Examination of three-dimensional airborne ultrasonic position real-time measurement using chirp wave	239
	Natee Thong-un [†] , Minoru K. Kurosawa, Shinnosuke Hirata (Tokyo Inst. of Tech.)	
2P2-7*	Development of variable focal Length ultrasonic transducer by changing curvature of PVDF	241
	Changhun Seok [†] , Young.H Kim (Korea Sci. Academy of KAIST)	
2P2-8*	Impact of odd-even phase modulated harmonic components in nonlinearity of shear elasticity	243
	Raj Kumar Parajuli [†] , Yoshiki Yamakoshi (Gunma Univ.)	
2P2-9*	Evaluation of the skewed rough surface profile based on johnson distribution by ultrasonic wave scattering	245
	Muhammad Nur Farhan Saniman [†] , Ikuo Ihara (Nagaoka Univ. of Tech.)	
2P2-10	A proposal to measure a thin layer thickness more accurately	247
	Yong Tae Kim [†] , Bong Young Ahn, Il Do, Wuon-Shik Kim (Korea Res. Inst. of Standards and Sci.)	
2P2-11	Research of array inspecting on structure with dual-layered and concave interface by total focusing method	249
	Zhenggan Zhou [†] , Yang Li (Beihang Univ.)	
2P2-12*	Nonlinear coefficients in lead-free materials	251
	Yaoyang Liu [†] , Takeshi Morita (Univ. of Tokyo)	

2P2-13	Basic study about the long distance non-contact acoustic inspection method using a strong ultrasonic sound source	253
	Tsuneyoshi Sugimoto ^{1†} , Ryo Akamatsu ² , Itsuki Uechi ¹ , Kazuko Sugimoto ¹ , Noriyuki Utagawa ³ , Kageyoshi Katakura ⁴ (¹ Toin Univ. of Yokohama; ² Ryoden Shonan Electronics Corp.; ³ Sato Kogyo; ⁴ Meitoku Eng., Lab.)	
2P2-14	Study on the defect detection algorithm by the non-contact acoustic inspection method using spectrum entropy	255
	Kazuko Sugimoto ^{1†} , Ryo Akamatsu ² , Tsuneyoshi Sugimoto ¹ , Noriyuki Utagawa ³ , Chitose Kuroda ³ , Kageyoshi Katakura ⁴ (¹ Toin Univ. of Yokohama; ² Ryoden Shonan Electronics Corp.; ³ Sato Kogyo; ⁴ Meitoku Eng., Lab.)	
2P2-15*	Speed measurement using sensitivity compensated signal with linear prediction -Band expanding by using ARMA model-	257
	Dai Chimura [†] , Ryo Toh, Seiichi Motooka (Chiba Inst. of Tech.)	
2P2-16	Subharmonic phased array for crack evaluation using refraction and/or mode conversion at an interface	259
	Akihiro Ouchi [†] , Azusa Sugawara, Yoshikazu Ohara, Kazushi Yamanaka (Tohoku Univ.)	
2P2-17	Introduction of linear array with small number of elements in reflection point search by rectangular sound source	261
	Hiroyuki Masuyama [†] (Toba Natl. Coll. Mar. Tech.)	
2P2-18	Time reversal pulse of seismic focus and transition radiation	263
	Toshiaki Kikuchi ^{1†} , Koichi Mizutani ² (¹ Natl. Defense Academy; ² Univ. of Tsukuba)	
2P2-19*	Inspection of defects in billet using time-of-flight difference and time-reversal wave	265
	Koichi Kakuma [†] , Koichi Mizutani, Naoto Wakatsuki, Tadashi Ebihara (Univ. of Tsukuba)	
2P2-20*	New method for liquid temperature sensing by use of a combination of laser doppler velocimetry and ultrasonic pulses	267
	Hirokazu Watanabe ^{1†} , Manabu Takahashi ² , Ikuo Ihara ¹ (¹ Nagaoka Univ. of Tech.; ² Sendai Natl. Coll. of Tech.)	
2P2-21*	Free-vibration acoustic resonance of orthorhombic crystals under high-pressure	269
	Yuta Yamaguchi [†] , Ryuichi Tarumi, Yoji Shibutani (Osaka Univ.)	
2P3-1	Construction of vibration sensor for detection of two-axis acceleration and one-axis angular rate	271
	Sumio Sugawara, Toshitaka Gono [†] (Ishinomaki Senshu Univ.)	
2P3-2	New construction of frequency-change-type two-axis acceleration sensor	273
	Sumio Sugawara, Kohei Omori [†] , Kyohei Takahashi (Ishinomaki Senshu Univ.)	
2P3-3	Study of mirror device using piezoelectric bending vibrators	275
	Sumio Sugawara, Hiroto Takahashi [†] , Yosifumi Sasaki (Ishinomaki Senshu Univ.)	
2P3-4	Viscoelastic analysis for shear horizontal surface acoustic wave biosensor on quartz	277
	Mikihiro Goto ^{1,2†} , Hiromi Yatsuda ^{1,3} , Jun Kondoh ² (¹ Japan Radio; ² Shizuoka Univ.; ³ OJ-Bio)	
2P3-5*	13.5 MHz impedance-loaded passive SAW sensor	279
	Hiromitsu Hamashima [†] , Jun Kondoh (Shizuoka Univ.)	
2P3-6*	SAW sensor based on high-resolution delay time for temperature measurement	281
	Chun-Chou Lin [†] , Jia-Hong Sun (Chang Gung Univ.)	
2P3-7	A study of density measurement using piezoelectric vibratory tactile sensor	283
	Subaru Kudo (Ishinomaki Senshu Univ.)	
2P3-8	Equivalent-network modeling of a liquid-level sensor operating in backward-wave-type trapped-energy vibration modes	285
	Ken Yamada [†] , Satoshi Fukazawa, Jun Obata (Tohoku Gakuin Univ.)	
2P4-1*	Study of aerial standing wave field using ultrasonic sources formed by four striped mode vibrating plates with a jut driving point	287
	Koki Naito [†] , Takuya Asami, Hikaru Miura (Nihon Univ.)	

2P4-2*	Linear array transducer for high power airborne ultrasound applications Jun Yamamoto [†] , Yosuke Mizuno, Marie Tabaru, Kentaro Nakamura (Tokyo Inst. of Tech.)	289
2P4-3*	Noncontact transportation in two dimensions using an acoustic standing wave Ryota Kashima, Daisuke Koyama [†] , Mami Matsukawa (Doshisha Univ.)	291
2P4-4*	A dynamic analysis of ultrasonically levitated droplet with moving particle semi-implicit and distributed point source method Yuji Wada [†] , Kohei Yuge ¹ , Ryohei Nakamura ² , Hiroki Tanaka ² , Kentaro Nakamura ² (¹ Seikei Univ.; ² Tokyo Inst. of Tech.)	293
2P4-5	Industrial ultrasonic levitation machine using conventional sound systems –Theoretical and simulation investigation– Takashi Ando [†] , Mitsutaka Hikita (Kogakuin Univ.)	295
2P4-6*	Mechanism of droplet manipulation using surface acoustic wave Tomohiko Fukaya [†] , Jun Kondoh (Shizuoka Univ.)	297
2P4-7*	Pump effect by ultrasonic transducer and opposing surface Hiroaki Shinada [†] , Yuji Ishino, Daisuke Yamaguchi, Masaya Takasaki, Takeshi Mizuno (Saitama Univ.)	299
2P4-8*	Non-contact atomizer of droplet by aerial ultrasonic source using two vibrating plates Arisa Endo [†] , Miduki Yanagimoto, Takuya Asami, Hikaru Miura (Nihon Univ.)	301
2P4-9*	Removal of liquid in an elongated pore by very high-intensity aerial ultrasonic waves Toshiyuki Ishii [†] , Ayumu Osumi, Youichi Ito (Nihon Univ.)	303
2P5-1	Effect of controlled offset of focal position in cavitation enhanced high intensity focused ultrasound treatment Kota Goto [†] , Ryo Takagi, Hayato Jinbo, Takuya Miyashita, Shin Yoshizawa, Shin-ichiro Umemura (Tohoku Univ.)	305
2P5-2*	Analysis of decorrelation in ultrasonic echo signals coincided with tissue change due to high-intensity focused ultrasound enhanced by cavitation Keiko Matsuura [†] , Ryo Takagi, Yukari Yanagisawa, Shin Yoshizawa, Tetsuya Kodama, Shim-ichiro Umemura (Tohoku Univ.)	307
2P5-3*	Analysis of ultrasound-enhanced heating in near and far vicinity of cavitation area Takuya Miyashita [†] , Jun Yasuda, Kei Taguchi, Shin Yoshizawa, Shin-ichiro Umemura (Tohoku Univ.)	309
2P5-4*	Optically and acoustically simultaneous measurement of phase change nano-droplet vaporization Ayumu Ishijima [†] , Jun Tanaka ¹ , Takashi Azuma ¹ , Miyuki Maezawa ² , Takehiro Ando ¹ , Etsuko Kobayashi ¹ , Ichiro Sakuma ¹ (¹ Univ. of Tokyo; ² Olympus)	311
2P5-5*	Ultrasound measurement of the blood flow vector by using microbubble Shouma Ohnishi [†] , Kyouko Ikemoto, Yoshiaki Watanabe, Iwaki Akiyaman (Doshisha Univ.)	313
2P5-6*	Study to form microbubbles aggregations as carrier for cell therapy and its fluorescence imaging evaluation Fumi Demachi ^{1†} , Yuta Murayama ¹ , Naoto Hosaka ¹ , Takashi Mochizuki ¹ , Kohji Masuda ¹ , Shin Enosawa ² , Toshio Chiba ² (¹ Tokyo Univ. of A&T; ² Natl. Center for Child Health and Dev.)	315
2P5-7	Compact phase delay control module for HIFU therapy Kiyoshi Yoshinaka ^{1†} , Shingo Toyoda ^{1,3} , Hideki Takeuchi ^{1,2} , Takashi Azuma ² , Akira Sasaki ² , Shu Takagi ² , Kazuyuki Mizuhara ^{1,3} , Yoichiro Matsumoto ² (¹ AIST; ² Univ. of Tokyo; ³ Tokyo Denki Univ.)	317
2P5-8*	Contrast enhanced HIFU beam imaging using speckle reduction Kazuhiro Matsui ^{1†} , Takashi Azuma ¹ , Keisuke Fujiwara ² , Kazunori Itani ² , Hideki Takeuchi ¹ , Shu Takagi ^{1,4} , Akira Sasaki ¹ , Kiyoshi Yoshinaka ³ , Ichiro Sakuma ¹ (¹ Univ. of Tokyo; ² Hitachi Aloka Medical; ³ AIST; ⁴ RIKEN)	319
2P5-9	Distribution of temperature elevation caused by moving HIFU transducer Jungsoon Kim ¹ , Jihee Jung ² , Moojoon Kim ^{2†} , Eunghwa Lee ³ , Ilkwon Lee ³ , Kanglyeol Ha ² (¹ Tongmyong Univ.; ² Pukyong Natl. Univ.; ³ Chungwoo Medical Ltd.)	321
2P5-10*	Detection of thermally-induced lesion using shear wave imaging in cavitation –Enhanced high-intensity focused ultrasound therapy Ryosuke Iwasaki [†] , Ryo Nagaoka, Ryo Takagi, Kota Goto, Shin Yoshizawa, Yoshifumi Saijo, Shin-ichiro Umemura (Tohoku Univ.)	323

2P5-11*	Estimation of thermal distribution in tissue mimicking phantom made of carrageenan gel	325
	Jungsoon Kim ¹ , Jihee Jung ^{2†} , Moojoon Kim ² , Kanglyeol Ha ² (¹ Tongmyong Univ.; ² Pukyong Natl. Univ.)	
2P5-12	Evaluation of HIFU treatment with 3D temperature measurement phantom	327
	Toshihide Iwahashi ^{1†} , Kazunori Itani ² , Keisuke Fujiwara ² , Takashi Azuma ¹ , Kazuhiro Matsui ¹ , Tang Tianhan ¹ , Kiyoshi Yoshinaka ³ , Akira Sasaki ¹ , Syu Tkagi ¹ , Yoichiro Matsumoto ¹ , Ichiro Sakuma ¹ (¹ Univ. of Tokyo; ² Hitachi Aloka Medical; ³ AIST)	
2P5-13*	Ultrasonic measurement of temperature distribution of biological tissue by local heating	329
	Akihisa Morita [†] , Mai Morimoto, Yoshiaki Watanabe, Iwaki Akiyama (Doshisha Univ.)	
2P5-14*	Analysis of heat caused by ultrasound radiation in tissue phantom with blood vessel	331
	Kazuma Shimizu [†] , Kota Fukasawa, Yuiti Hatano, Takenobu Tsuchiya, Nobuyuki Endoh (Kanagawa Univ.)	
2P5-15	Measurement of temperature distribution in tissue equivalent phantom using ultrasonic velocity-change imaging	333
	Kazune Mano [†] , Shohei Tanigawa, Kenji Wada, Toshiyuki Matsunaka, Hiromichi Horinaka (Univ. of Osaka Pref.)	
2P5-16*	Viscoelasticity phantom and its quantitative assessment methods with shear wave	335
	Mikako Gomyo [†] , Kengo Kondo, Makoto Yamakawa, Tsuyoshi Shiina (Kyoto Univ.)	
2P6-1	Adaptive passive fathometer processing using ambient noise received by nested vertical array	337
	Junghun Kim [†] , Jee Woong Choi (Hanyang Univ.)	
2P6-2	Observation of oceanic ambient noise at the IEODO ocean research station	339
	Byoung-Nam Kim, Jong Wan Kim [†] , Sung Min Han, Bok Kyung Choi, Seom-Kyu Jung, JaeSeol Shim (Korea Inst. of Sci. and Tech.)	
2P6-3*	Measurements of the depth-dependent characteristics of light bulb implosion	341
	Sungho Cho ^{1†} , Donhyug Kang ¹ , Suntaek Oh ¹ , Seom-Kyu Jung ¹ , Jee Woong Choi ² (¹ Korea Inst. of Ocean Sci. and Tech.; ² Hanyang Univ.)	
2P6-4	Analysis of broadband interference in deep water	343
	Seongwook Lee ^{1†} , Jungyul Na ² , Suntaek Oh ¹ , Seom-Kyu Jung ¹ , Don-Hyug Kang ¹ (¹ Korea Inst. of Ocean Sci. and Tech.; ² Hanyang Univ.)	
2P6-5	Measurement of continuous underwater acoustic signals in continental shelf break	345
	Jooyoung Hahn [†] , Changbong Cho, Youngnam Na (Agency for Defense Dev.)	
2P6-6	Measurements of ultrasound attenuation in suspended sediment	347
	Changil Lee [†] , Jee Woong Choi (Hanyang Univ.)	
2P6-7*	Acoustic monitoring of fish activity around an artificial reef in south sea, Korea	349
	Hyunbeen Lee ^{1†} , Donhyug Kang ² , Kyounghoon Lee ¹ , Sungho Cho ² , Jee Woong Choi ³ (¹ Natl. Fish. Res. and Dev. Inst.; ² Korea Inst. of Ocean Sci. and Tech.; ³ Hanyang Univ.)	
2P6-8	Monitoring and controlling power generators in underwater environment using CDMA on acoustic communication and power line communication	351
	Ching-Chuan Tseng [†] , Jiann-Fuh Chen, Chih-Hung Kuo (Natl. Cheng Kung Univ.)	
2P6-9	Experiment of underwater acoustic communication using orthogonal signal division multiplexing and diversity technique in a harbor	353
	Tadashi Ebihara ^{1†} , Hanako Ogasawara ² , Koichi Mizutani ¹ (¹ Univ. of Tsukuba; ² Natl. Defense Academy)	
2P6-10	4-FSK performance in very shallow ocean	355
	Dandan Xue [†] , Chulwon Seo, Jihyun Park, Kyu-Chil Park, Jong Rak Yoon (Pukyong Natl. Univ.)	
2P6-11	Performances of forward error correction methods in very shallow water multipath channel	357
	Jihyun Park [†] , Chulwon Seo, Sanghyun Park, Kyu-Chil Park, Jong Rak Yoon (Pukyong Natl. Univ.)	
2P6-12	Performance comparison of adaptive equalizers between packet and continuous data transmission in shallow water	359
	Kyu-Chil Park [†] , Jihyun Park, Chulwon Seo, Jong Rak Yoon (Pukyong Natl. Univ.)	
2P6-13	Realization of environmental performance surface for effective deployment of underwater sensor network node	361
	Woojoong Kim ^{1†} , Hyun Wook Moon ² , Chan Ju Park ¹ , Jungsoo Park ³ , YoungJoong Yoon ¹ (¹ Yonsei Univ.; ² LIG Nex1 Co., Ltd; ³ Agency for Defense Dev.)	

2P6-14	Estimation of underwater time-reversal channel capacity using spatially correlated channel signals	363
	Joonsuk Kim ¹ , Il-Suek Koh ² , Yongshik Lee ^{1†} (¹ Yonsei Univ.; ² Inha Univ.)	
2P6-15	Adaptive time reversal multiuser communication in the deep ocean	365
	Takuya Shimura [†] , Mitsuyasu Deguchi, Yukihiro Kida, Hiroshi Ochi (JAMSTEC)	
2P6-16*	High data rate scheduling for underwater acoustic communication in shallow water	367
	Hyeonsu Kim [†] , Jongpil Seo, Dongkyu Lee, Jaehak Chung (Inha Univ.)	
16:20-17:05 Physical Acoustics, Acousto-Optics II, Ocean Acoustics		
Chair: Oliver B. Wright (Hokkaido Univ.)		
2E5-1*	Brillouin scattering and first principle studies of relaxor ferroelectric 44Pb(Mg_{1/3}Nb_{2/3})O₃-56PbTiO₃	369
	Helal Md Al [†] , Seiji Kojima (Univ. of Tsukuba)	
2E5-2	Laser ultrasound technique for material characterization of thermal sprayed coatings	371
	Yeh Cheng Hung, Tai Chieh Wu [†] , Che Hua Yang (Natl. Taipei Univ. of Tech.)	
2E5-3	Vertical distribution of giant jellyfish, <i>Nomurai nemopilema</i> using acoustics and optics	373
	Seonghun Kim ¹ , Kyoungheon Lee ^{2†} , Won-Deuk Yoon ¹ , Hyungbeen Lee ¹ , Yong-su Yang ¹ (¹ Natl. Fish. Res. and Dev. Inst.; ² Chonnam Natl. Univ.)	
17:05-17:25	Awards Ceremony	
17:25-18:00	Break	
18:00-20:00	Banquet	

Friday, December 5

9:10-10:10	High Power Ultrasound, Sonochemistry	
	Chair: Subaru Kudo (Ishinomaki Senshu Univ.)	
3J1-1	Planar formation of particles levitated by four surrounding ultrasound phased arrays	375
	Takayuki Hoshi ^{1†} , Yoichi Ochiai ² , Jun Rekimoto ^{2,3} (¹ Nagoya Inst. of Tech.; ² Univ. of Tokyo; ³ SONY CSL)	
3J1-2*	Adjustment of distance between driving idt and reflector in SAW motor	377
	Deqing Kong [†] , Minoru Kuribayashi Kurosawa (Tokyo Inst. of Tech.)	
3J1-3	Difference of energy efficiency between traveling-wave type and standing-wave type thermoacoustic engines	379
	Kyuichi Yasui [†] , Teruyuki Kozuka, Masaki Yasuoka, Kazumi Kato (AIST)	
3J1-4*	Observation of cavitation bubbles and acoustic streaming in high intensity ultrasound field	381
	Yuki Uemura ^{1†} , Kazuma Sasaki ¹ , Kyohei Minami ¹ , Pak kon Choi ² , Toshio Sato ¹ , Shinichi Takeuchi ¹ (¹ Toin Univ. of Yokohama; ² Meiji Univ.)	
10:10-11:10	Biomedical Ultrasound II	
	Chair: Hideyuki Hasegawa (Tohoku Univ.)	
3J2-1	Modification of adaptive beamformer for improvement of spatial resolution in high frame rate ultrasonography	383
	Hideyuki Hasegawa [†] , Hiroshi Kanai (Tohoku Univ.)	
3J2-2*	Active induction of microbubbles in flow by time-shared production of two focal points with opposite phase	385
	Shinya Miyazawa ^{1†} , Naoto Hosaka ¹ , Ren Koda ¹ , Shinya Onogi ¹ , Takashi Mochizuki ¹ , Kohji Masuda ¹ , Yusuke Oda ² , Ryo Suzuki ² , Kazuo Maruyama ² (¹ Tokyo Univ. of A&T; ² Teikyo Univ.)	

3J2-3*	Effects of microstructure on bone piezoelectricity in the MHz range	387
	Hiroko Tsuneda ^{1†} , Sayaka Matsukawa ¹ , Isao Mano ¹ , Katsunori Mizuno ² , Takahiko Yanagitani ³ , Shinji Takayanagi ¹ , Mami Matsukawa ¹ (¹ Doshisha Univ.; ² Univ. of Tokyo; ³ Nagoya Inst. of Tech.)	
3J2-4*	Frequency dependence of ultrasonically accelerated fibrillation phenomenon of Alzheimer-disease peptides	389
	Kanta Adachi ^{1†} , Kichitaro Nakajima ¹ , Kentaro Noi ² , Hisashi Yagi ³ , Yuji Goto ¹ , Hirotugu Ogi ¹ , Masahiko Hirao ¹ (¹ Osaka Univ.; ² Kumamoto Univ.; ³ Tottori Univ.)	
11:10-12:10	Biomedical Ultrasound III	Chair: Nobuki Kudo (Hokkaido Univ.)
3J3-1	Characteristic of ultrasound beam for fetal surgery	391
	Tomoo Sato ^{1†} , Shunsuke Osawa ² , Hiromasa Yamashita ¹ , Ubaidus Sobhan ¹ , Rie Ishii ² , Takashi Mochizuki ³ , Toshio Chiba ¹ (¹ Natl. Center for Child Health and Dev.; ² Showa Univ.; ³ Medical Ultrasound Lab.)	
3J3-2*	Elimination of therapeutic ultrasound noise from pre-beamformed RF data in ultrasound imaging for US-guided high-intensity focused ultrasound treatment	393
	Ryo Takagi [†] , Kota Goto, Hayato Jinbo, Keiko Matsuura, Ryosuke Iwasaki, Shin Yoshizawa, Shin-ichiro Umemura (Tohoku Univ.)	
3J3-3*	Real-time feedback control for HIFU system using localized motion imaging	395
	Ryusuke Sugiyama ^{1†} , Kengo Kanazawa ¹ , Mika Seki ¹ , Takashi Azuma ¹ , Akira Sasaki ¹ , Hideki Takeuchi ¹ , Keisuke Fujiwara ² , Kazunori Itani ² , Satoshi Tamano ² , Kiyoshi Yoshinaka ³ , Shu Takagi ¹ , Yoichiro Matsumoto ¹ (¹ Univ. of Tokyo; ² Hitachi Aloka Medical; ³ AIST)	
12:10-13:30	LUNCH TIME	
13:30-14:20	Plenary Talk III	Chair: Shin-ichiro Umemura (Tohoku Univ.)
3PL	Optical methods for Visualization of Ultrasound Fields	397
	Nobuki Kudo (Hokkaido Univ.)	
14:20-16:20	Poster Session	Chair: Kyuichi Yasui (AIST)
3P1-1*	Performance estimation of photothermal contrast-applied microscope	399
	Midori Manago [†] , Akira Harata (Kyushu Univ.)	
3P1-2	Terahertz acoustic wave on piezoelectric semiconductor film via large-scale molecular dynamics simulation	401
	Ryo Hikata [†] , Kenji Tsuruta, Atsushi Isikawa, Kazuhiro Fujimori (Okayama Univ.)	
3P1-3*	Inclined sound radiator using flexural wave in honeycomb	403
	Ayaka Fujii [†] , Naoto Wakatsuki, Koichi Mizutani (Univ. of Tsukuba)	
3P1-4*	Brillouin scattering measurement using induced phonon from ScAlN piezoelectric thin film	405
	Masahiko Kawabe ^{1†} , Takahiko Yanagitani ² , Hayato Ichihashi ¹ , Shinji Takayanagi ¹ , Masashi Suzuki ² , Mami Matsukawa ¹ (¹ Doshisha Univ.; ² Nagoya Inst. of Tech.)	
3P1-5*	Elastic constants c_{11} and c_{66} in $\text{Sc}_x\text{Al}_{1-x}\text{N}$ films determined by Brillouin scattering method	407
	Hayato Ichihashi ^{1†} , Takahiko Yanagitani ² , Masashi Suzuki ² , Shinji Takayanagi ¹ , Masahiko Kawabe ¹ , Mami Matsukawa ¹ (¹ Doshisha Univ.; ² Nagoya Inst. of Tech.)	
3P1-6	Evaluation of $\text{Ca}_3\text{Ta}(\text{Ga}_{0.5}\text{Al}_{0.5})_3\text{Si}_2\text{O}_{14}$ single crystal by the ultrasonic microspectroscopy technology	409
	Yuji Ohashi [†] , Tetsuo Kudo, Yuui Yokota, Shunsuke Kurosawa, Kei Kamada, Akira Yoshikawa (Tohoku Univ.)	
3P1-7*	Fundamental study on nucleation process of hydrothermally synthesized PZT poly-crystalline film	411
	Toshinobu Abe ^{1†} , Seiya Ozeki ¹ , Minoru Kuribayashi Kurosawa ² , Shinichi Takeuchi ¹ (¹ Toin Univ. of Yokohama; ² Tokyo Inst. of Tech.)	
3P1-8*	Fundamental study on control of deposition area for hydrothermally synthesized PZT poly-crystalline film	413
	Seiya Ozeki ^{1†} , Toshinobu Abe ¹ , Minoru Kuribayashi Kurosawa ² , Shinichi Takeuchi ¹ (¹ Toin Univ. of Yokohama; ² Tokyo Inst. of Tech.)	

3P1-9	Multiple-wavelength Resonant Photoacoustic Imaging System	415
	Tsutomu Hoshimiya ^{1†} , Jun Hoshimiya ² , Tetsuo Taniuchi ³ (¹ Tohoku Gakuin Univ.; ² Bits Corp.; ³ Tohoku Univ.)	
3P2-1*	Studies on the dynamics of microsphere suspensions observed by dynamic ultrasound scattering method at high PRF	417
	Tomoyuki Sawada [†] , Hideyuki Nakanishi, Tomohisa Norisuye, Qui Tran-Cong-Miyata (Kyoto Inst. of Tech.)	
3P2-2*	Reflective boundary condition with arbitrary boundary shape for compact explicit-finite difference time domain method	419
	Osamu Yamashita ^{1†} , Tsuchiya Takao ¹ , Yukio Iwaya ² , Makoto Otani ³ , Yasushi Inoguchi ⁴ (¹ Doshisha Univ.; ² Tohoku Gakuin Univ.; ³ Shinshu Univ.; ⁴ Japan Advanced Inst. of Sci. and Tech.)	
3P2-3*	Comparison of FBG sensors and thermocouples for measurement of temperature rise by exposure to ultrasound	421
	Keisuke Imade [†] , Daisuke Koyama, Iwaki Akiyama (Doshisha Univ.)	
3P2-4*	A basic study of non-contact and non-destructive method by high-intensity aerial ultrasonic wave -Comparing with continuous wave and burst wave-	423
	Ayumu Osumi [†] , Tatsunori Saito, Youichi Ito (Nihon Univ.)	
3P2-5	Analysis of leaky guided waves propagating in a water-filled pipe	425
	Harumichi Sato [†] , Hisato Ogiso (AIST)	
3P2-6	Development of large displacement SiC pulser for subharmonic ultrasound measurement	427
	Ren Koda ^{1†} , Tsuyoshi Mihara ¹ , Goki Konishi ¹ , Yoshio Udagawa ² (¹ Univ. of Toyama; ² Imaging Supersonic Lab.)	
3P2-7*	Simulation of leaky Lamb wave propagation with a semi-analytical finite element technique	429
	Daisuke Inoue [†] , Takahiro Hayashi, Shiro Biwa (Kyoto Univ.)	
3P2-8*	Experimental verification of Doppler velocity estimation by spectrum pattern analysis of M-sequence modulated ultrasound	431
	Yohei Ikari [†] , Shinnosuke Hirata, Hiroyuki Hachiya (Tokyo Inst. of Tech.)	
3P2-9*	Evaluation about propagation characteristics of pass-through airborne ultrasound for ultrasonic bone assessment	433
	Shinnosuke Hirata ^{1†} , Koichi Terashima ¹ , Hiroyuki Hachiya ¹ , Nobuo Niimi ² (¹ Tokyo Inst. of Tech.; ² NIPPON SIGMAX)	
3P2-10*	Corrosion sensor for the pipe with wide area coverage	435
	Minako Terao [†] , Hiroaki Tanaka, Yoshiaki Tanaka (Yokogawa Electric)	
3P2-11	Basic study on the detection of the water stress in the plant using ultrasonic sound source	437
	Yutaka Nakagawa ^{1†} , Tsuneyoshi Sugimoto ¹ , Motoaki Sano ¹ , Takashi Shirakawa ¹ , Kaoru Yamagishi ¹ , Takeyuki Ohdaira ¹ , Sakae Shibusawa ² (¹ Toin Univ. of Yokohama; ² Tokyo Univ. of A&T)	
3P2-12*	Noncontact measurement of breathing and heart rate using airborne ultrasound	439
	Kotaro Hoshiba [†] , Shinnosuke Hirata, Hiroyuki Hachiya (Tokyo Inst. of Tech.)	
3P2-13*	Subharmonic ultrasound generation depending on crack opening and incident wave amplitude	441
	Takahiro Matsueda [†] , Tsuyoshi Mihara, Makoto Hamai (Univ. of Toyama)	
3P2-14*	Effect of thermal conductivity on phased array imaging of closed crack by global preheating and local cooling	443
	Koji Takahashi [†] , Kouki Ohmachi, Kentaro Jinno, Yoshikazu Ohara, Kazushi Yamanaka (Tohoku Univ.)	
3P2-15*	Ultrasonic temperature monitoring near heating surface by measuring oblique incident bulk waves using laser ultrasound	445
	Akira Kosugi [†] , Shotaro Shinoda, Iwao Matsuya, Ikuo Ihara (Nagaoka Univ. of Tech.)	
3P2-16	Non destructive inspection by broadband, high sensitive flexible array probe	447
	Katsumi Ohira [†] , Yuusuke Tanaka, Daisuke Hirano, Akira Sakai, Yukio Ogura (Japan Probe)	
3P2-17	Development of automated abdominal sound speed tomographic imaging system	449
	Toshihiko Yokoyama [†] , Daichi Shimizu, Akira Yamada (Tokyo Univ. of A&T)	

3P2-18	Imaging flexural waves in microscopic wedges	451
	Motonobu Tomoda ^{1†} , Shinnosuke Matsueda ¹ , Paul H. Otsuka ¹ , Osamu Matsuda ¹ , Istvan A. Veres ² , Vitali E. Gusev ³ , Oliver B. Wri ¹ (¹ Hokkaido Univ.; ² Res. Center for Non Destructive Testing; ³ Univ. of Maine)	
3P2-19	The relation of real vibration frequency and nominal resonance frequency of the transducer	453
	Yoshio Udagawa ¹ , Osami Kobori ^{2†} (¹ Imaging Supersonic Lab.; ² Electron Sci. Inst.)	
3P2-20*	Numerical analysis of sound wave propagation using hybrid MM-MOC method with non-uniform grid	455
	Yuta Matsumura ^{1†} , Kan Okubo ¹ , Norio Tagawa ¹ , Takao Tsuchiya ² , Takashi Ishizuka ³ (¹ Tokyo Met. Univ.; ² Doshisha Univ.; ³ Shimizu Corp.)	
3P4-1*	Dynamic characteristic analysis of non-resonance type ultrasonic actuator by electronic circuit simulator	457
	Shinji Sakai [†] , Manabu Aoyagi (Muroan Inst. of Tech.)	
3P4-2*	Study on temperature dependency for driving performance of the ultrasonic motor for cryogenic temperature	459
	Masahiro Nakazono ^{1†} , Takefumi Kanda ¹ , Daisuke Yamaguchi ² , Kouichi Suzumori ³ (¹ Okayama Univ.; ² Saitama Univ.; ³ Tokyo Inst. of Tech.)	
3P4-3	Preload characteristic of micro ultrasonic motor using a stator of one cubic millimeter	461
	Tomoaki Mashimo [†] (Toyohashi Univ. of Tech.)	
3P4-4*	Flexible-type coiled stator ultrasonic motor for thrombus removal system	463
	Seiya Ishikura ^{1†} , Masasumi Yoshizawa ¹ , Norio Tagawa ² , Takasuke Irie ³ , Tadashi Moriya ² (¹ Tokyo Met. Coll. of Industrial Tech.; ² Tokyo Met. Univ.; ³ Microsonic)	
3P4-5*	Effects of inner tube-diameter on a coaxial thermoacoustic engine	465
	Gouki Takeuchi ^{1†} , Shin-ichi Sakamoto ² , Yoshiaki Watanabe ¹ (¹ Doshisha Univ.; ² Univ. of Shiga Pref.)	
3P4-6*	Study on effect of installation position of prime movers enlarged cross-sectional area on oscillation temperature in loop-tube-type multi-stage thermoacoustic system	467
	Tatsuya Ishino ^{1†} , Shin-ichi Sakamoto ¹ , Yuichiro Orino ¹ , Yoshitaka Inui ¹ , Yoshiaki Watanabe ² (¹ Univ. of Shiga Pref.; ² Doshisha Univ.)	
3P4-7	Effect of phase adjuster length change on sound field in a loop-tube-type thermoacoustic system	469
	Shin-ichi Sakamoto ^{1†} , Yuichiro Orino ¹ , Yuki Imaeda ¹ , Yoshitaka Inui ¹ , Yoshiaki Watanabe ² (¹ Univ. of Shiga Pref.; ² Doshisha Univ.)	
3P4-8	Development of impact-reduction system using ultrasonic melting	471
	Atsuyuki Suzuki ^{1†} , Kosaku Hayashida ² , Jiromaru Tsujino ³ (¹ Natl. Inst. of Tech., Tokuyama Coll.; ² Kanagawa Univ.)	
3P4-9	Observation of machining marks caused by ultrasonic machining using complex vibration	473
	Takuya Asami [†] , Hikaru Miura (Nihon Univ.)	
3P4-10*	A MHz power ultrasonic system using parabolic boundary reflector	475
	Hideyuki Fukuda [†] , Yosuke Mizuno, Marie Tabaru, Kentaro Nakamura (Tokyo Inst. of Tech.)	
3P4-11	Sonoluminescence observed in a generator of standing acoustic cavitation with the help of a punching metal plate	477
	Koichi Sasaki ¹ , Yushi Iwata ¹ , Shusuke Nishiyama ¹ , Satoshi Tomioka ¹ , Noriharu Takada ² (¹ Hokkaido Univ.; ² Nagoya Univ.)	
3P4-12*	Dissolved gas and ultrasonic frequency dependences of two types of Na emission in sonoluminescence	479
	Ryota Nakajima [†] , Pak-Kon Choi (Meiji Univ.)	
3P4-13	Sonochemical degradation of aromatic compounds in the presence of inorganic salts	481
	Uddin Md. Helal [†] , Kenji Okitsu (Osaka Pref. Univ.)	
3P4-14	On the sonochemiluminescence from a microspace	483
	Toru Tuziuti [†] (AIST)	

3P4-15	The rate control of sonochemical reaction by additives	Hisashi Harada [†] (Meisei Univ.)	485
3P4-16	Effect of particle addition on ultrasonic degradation reaction rate	Daisuke Kobayashi ^{1†} , Kaho Shimakage ¹ , Chiemi Honma ¹ , Hideyuki Matsumoto ² , Yuichiro Shimada ¹ , Katsuto Otake ¹ , Atsushi Shono ¹ (¹ Tokyo Univ. of Sci.; ² Tokyo Inst. of Tech.)	487
3P4-17	Extraction of particle size distribution and surrounding ultrasonic pressure in water from laser diffraction pattern	Takanobu Kuroyama ^{1†} , Koichi Mizutani ¹ , Naoto Wakatsuki ¹ , Tadashi Ebihara ¹ , Takeshi Ohbuchi ² (¹ Univ. of Tsukuba; ² Natl. Defense Academy)	489
3P4-18	Measurement of the sound pressure and the cavitation intensity in the ultrasonic cleaning machine using fiber probe optic hydrophone	Yoshikazu Koike ^{1†} , Takayuki Toya ¹ , Kentaro Yamauchi ¹ , Yoshiki Hashimoto ² (¹ Shibaura Inst. of Tech.; ² Otari, Inc.)	491
3P4-19*	Desorption of CO₂ from a low concentration of monoethanolamine solution using calcium chloride under ultrasound irradiation	Kosuke Tanaka [†] , Hirokazu Okawa, Tatsuo Fujiwara, Takahiro Kato, Katsuyasu Sugawara (Akita Univ.)	493
3P4-20	Dispersion and coalescence of oil droplet by ultrasound and application for metal recovery	Keiji Yasuda ^{1†} , Thanh Tam Nguyen ¹ , Risa Okura ¹ , Shingo Nakayama ¹ , Yoshiyuki Asakura ² , Jiye Jin ³ (¹ Nagoya Univ.; ² Honda Electronics; ³ Shinshu Univ.)	495
3P4-21*	Frequency dependence of the ultrasonic disruption of algae	Masaki Kurokawa ^{1†} , Kazuya Nagamine ¹ , Patrick M. King ² , Xiaoge Wu ² , Eadaoin M. Joyce ² , Timothy J. Mason ² , Ken Yamamoto ¹ (¹ Kansai Univ.; ² Coventry Univ.)	497
3P4-22	Concentration of liquid sample for gamma-ray spectroscopy by using ultrasonic nebulizing	Jungsoon Kim ^{1†} , Jihyang Kim ² , Jihee Jung ² , Moojoon Kim ² , Kanglyeol Ha ² (¹ Tongmyong Univ.; ² Pukyong Natl. Univ.)	499
3P4-23	Analysis of yeast cell death induced by 40kHz ultrasound	Ji Wook Kim [†] , Inhyeok Choi, Jayoung Ryu, Young H. Kim, Kwang Il Kang (Korea Sci. Academy of KAIST)	501
3P4-24	The effect of aeration on sonochemical oxidation in a pilot-scale sonoreactor	Younggyu Son [†] (Kumoh Natl. Inst. of Tech.)	503
3P4-25*	Synthesis of large scorodite particle using ultrasound irradiation and carbon dioxide	Yuya Kitamura [†] , Hirokazu Okawa, Katsuyasu Sugawara (Akita Univ.)	505
3P4-26	Removal of arsenous acid from sulfuric acidic solutions using ultrasound oxidation and iron oxide	Hirokazu Okawa ^{1†} , Tomohiro Yoshikawa ¹ , Ryota Hosokawa ¹ , Shingi Hangui ¹ , Takane Matsunuma ¹ , Takahiro Osawa ¹ , Youhei Kawamura ² , Katsuyasu Sugawara ¹ (¹ Akita Univ.; ² Curtin Univ.)	507
3P5-1	An apodization in finite array synthetic aperture processing for accurate motion estimate in living tissue	Daiki Sugeno ^{1†} , Shin-ichi Yagi ¹ , Kiyoshi Tamura ² , Masakazu Sato ³ (¹ Meisei Univ.; ² Hitachi Aloka Medical; ³ Microsonic)	509
3P5-2	A study for high-definition ultrasound imaging based on synthetic aperture scheme	Takayuki Wada ^{1†} , Takuya Hiraoka ¹ , Yoshiyasu Hirose ² , Norio Tagawa ¹ , Kan Okubo ¹ , Yihsin Ho ¹ (¹ Tokyo Met. Univ.; ² ITOCHU Techno-Solutions Corp.)	511
3P5-3*	Transcranial Doppler ultrasonography using spatial domain interferometry with Capon method: simulation study	Shigeaki Okumura ^{1†} , Aya Kita ² , Hirofumi Taki ¹ , Toru Sato ¹ (¹ Kyoto Univ.; ² Sakai Rumi Clinic)	513
3P5-4*	A study for improving SNR of ultrasound images using amplitude and phase characteristics of fundamental and harmonic components	Masayuki Tanabe ^{1†} , Kota Tashiro ¹ , Takahisa Kadosono ¹ , Masahiko Nishimoto ¹ , Kan Okubo ² , Norio Tagawa ² (¹ Kumamoto Univ.; ² Tokyo Met. Univ.)	515
3P5-5*	Degradation analysis of ultrasound imaging using split and merge chirp	Hodaka Tamura [†] , Masayuki Tanabe, Masahiko Nishimoto (Kumamoto Univ.)	517

3P5-6*	A fundamental study for puncture type B-mode imaging with 100 MHz band using thin quartz fiber	519
	Takuto Izawa ^{1†} , Takasuke Irie ^{1,2} , Masakazu Sato ² , Yoshiyasu Hirose ³ , Norio Tagawa ¹ , Masasumi Yoshizawa ⁴ , Tadashi Moriya ¹ (¹ Tokyo Met. Univ.; ² Microsonic; ³ ITOCHU Techno-Solutions; ⁴ Tokyo Met. Coll. of Industrial Tech.)	
3P5-7*	Effect of PRF on microcalcification detection in color flow imaging (Part 2)	521
	Yu Naito ^{1†} , Masayuki Tanabe ¹ , Hiroshi Hashimoto ² , Tadashi Shimazaki ² , Takao Jibiki ² , Masahiko Nishimoto ¹ (¹ Kumamoto Univ.; ² GE Healthcare Japan)	
3P5-8*	Estimation of scatterer size and density in sound field produced by linear array phased transducers	523
	Takuma Oguri ^{1†} , Kenji Yoshida ¹ , Mamou Jonathan ² , Hitoshi Maruyama ¹ , Hiroyuki Hachiya ³ , Tadashi Yamaguchi ¹ (¹ Chiba Univ.; ² Lizzi Center for Biomedical Eng.; ³ Tokyo Inst. of Tech.)	
3P5-9*	Quantitative analysis of ultrasonic images of fibrotic liver using co-occurrence matrix based on multi-Rayleigh model	525
	Hiroshi Isono [†] , Shinnosuke Hirata, Hiroyuki Hachiya (Tokyo Inst. of Tech.)	
3P5-10*	Probability image of tissue characteristics based on multi-Rayleigh model for liver fibrosis by removing non-speckle signal	527
	Shohei Mori ^{1†} , Shinnosuke Hirata ¹ , Tadashi Yamaguchi ² , Hiroyuki Hachiya ¹ (¹ Tokyo Inst. of Tech.; ² Chiba Univ.)	
3P5-11*	Motion compensated speckle tracking in vivo via particle filtering	529
	Lixin Liu ^{1,2†} , Shin-ichi Yagi ² , Hongyu Bian ¹ (¹ Harbin Eng. Univ.; ² Meisei Univ.)	
3P5-12	Speckle imaging of intracardiac blood flow with suppression of motion artifact	531
	Hiroki Takahashi [†] , Hideyuki Hasegawa, Hiroshi Kanai (Tohoku Univ.)	
3P5-13	Visualization of blood-flow dynamics with motion compensation in contrast-enhanced ultrasonography for differential tumor diagnosis	533
	Hideki Yoshikawa [†] , Zisheng LI, Ken-ichi Kawabata (Hitachi)	
3P5-14*	A 3D ultrasound image registration and extraction of portal vein for long time monitoring	535
	Toshiki Teratoko [†] , Tomohiro Ueno, Koichi Ishizu, Yasutomo Fujii, Tsuyoshi Shina, Naozo Sugimoto (Kyoto Univ.)	
3P5-15*	Development of measurement system for cross-sectional image of muscle using ultrasonography and 3D position sensors	537
	Kiyotaka Fukumoto [†] , Yoshinobu Ebisawa (Shizuoka Univ.)	
3P5-16	Automated detection of arterial wall boundary based on multiscale dynamic programming for elasticity imaging	539
	Yukiya Miyachi ^{1,2†} , Hideyuki Hasegawa ² , Hiroshi Kanai ² (¹ FUJIFILM Corp.; ² Tohoku Univ.)	
3P5-17*	Evaluation of arterial stiffness by pulse wave at back and forth of the carotid bifurcation	541
	Takuya Odahara ^{1†} , Masashi Saito ² , Takaaki Asada ² , Mami Matsukawa ¹ (¹ Doshisha Univ.; ² Murata Mfg.)	
3P5-18	Effects of damper layer parameters on applied strain uniformity in static elastography	543
	Yuichi Tashiro [†] , Takayuki Sato (Tokyo Met. Univ.)	
3P5-19*	A basic study of intrinsic elastography based on propagation velocity distribution induced by artery pulsation	545
	Ryo Nagaoka ^{1†} , Ryosuke Iwasaki ¹ , Mototaka Arakawa ¹ , Kazuto Kobayashi ² , Shin Yoshizawa ¹ , Shin-ichiro Umemura ¹ , Yoshifumi Saijo ¹ (¹ Tohoku Univ.; ² Honda Electronics)	
3P5-20	A method to reduce the influence of reflected shear waves on shear velocity measurement	547
	Zhen Qu, Yuu Ono [†] (Carleton Univ.)	
3P6-1*	Overwintering observation of the long-distance sound wave propagation overwintering in the Antarctic Ocean	549
	Shinpei Gotoh ^{1,2†} , Taiyo Kobayashi ¹ , Toshio Tsuchiya ^{1,3} , Yoshihisa Hiyoshi ¹ , Koichi Mizutani ² (¹ JAMSTEC; ² Univ. of Tsukuba; ³ Tokyo Univ. of Marine Sci. and Tech.)	
3P6-2	Development and experiment of bio-tracking system in deep sea	551
	Yoshitaka Watanabe [†] , Shinji Tsuchida (JAMSTEC)	

3P6-3	On fin whale vocalizations seen on waveforms of ocean bottom seismometers in east japan pacific sea area	553
	Ryoichi Iwase [†] (JAMSTEC)	
3P6-4*	Sound propagation analysis including wall reflected waves at hashirimizu port	555
	Hanako Ogasawara [†] , Kazuyoshi Mori, Toshiaki Nakamura (Natl. Defense Academy)	
3P6-5	3-Dimensional convergence properties of off-axis aplanatic straubel acoustic mirror	557
	Yuji Sato ¹ , Yuki Usami ² , Hanako Ogasawara ² , Koichi Mizutani ¹ , Toshiaki Nakamura ^{2†} (¹ Univ. of Tsukuba; ² Natl. Defense Academy)	
3P6-6	Influence of refractive index by structure parameter of phononic crystal and analysis of focusing acoustic field	559
	Kazuma Shimizu ¹ , Takenobu Tsuchiya ^{1†} , Tetsuo Anada ¹ , Nobuyuki Endoh ¹ , Sayuri Matsumoto ² , Kazuyoshi Mori ³ (¹ Kanagawa Univ.; ² The Port and Airport Res. Inst.; ³ Natl. Defense Academy)	
16:20-17:05 Ocean acoustics Chair: Hiroyuki Hachiya (Tokyo Inst. of Tech.)		
3J4-1	Sonar mapping with synthetic aperture sonar at sanrikukaigan coast	561
	Takao Sawa ^{1†} , Takafumi Kasaya ¹ , Kunihiro Nakatsuka ² , Nobuhiro Tanaka ³ , Yasuo Furushima ¹ (¹ JAMSTEC; ² SAS; ³ Aiichi Industry)	
3J4-2	Rebuilding a prototype system for ambient noise imaging with acoustic lens	563
	Kazuyoshi Mori ^{1†} , Hanako Ogasawara ¹ , Toshiaki Nakamura ¹ , Takenobu Tsuchiya ² , Nobuyuki Endoh ² (¹ Natl. Defense Academy; ² Kanagawa Univ.)	
3J4-3	Sound propagation in a current rip region; From Tsugaru warm eddy side to Oyashio cold water mass	565
	Yoshiaki Tsurugaya ^{1†} , Toshiaki Kikuchi ² , Koichi Mizutani ³ (¹ Sanyo PT; ² Natl. Defense Academy; ³ Univ. of Tsukuba)	
17:05-17:15 CLOSING		