

Technical Sessions of the 2003 IEEE International Ultrasonics Symposium

OPENING SESSION

Tapa Ballroom #2 (Tapas 2)
Monday, October 6, 2003
8:00 a.m.-10:00 a.m.

WELCOME

Clemens Ruppel, Vice President, Ultrasonics
Helen F. Routh, Technical Program Chair

AWARDS AND RECOGNITIONS

Achievement Award
Distinguished Service Award
Rayleigh Award
Outstanding Paper Award
Fellow Awards
Distinguished Lecturer Award

Plenary Talk

Shrimp, Snap, Bubble, and Pop
Michel Versluis
University of Twente, Enschede, The Netherlands

10:30 a.m. – 12:00 noon

Monday, October 6, 2003

Honolulu, Hawaii

30

		<p><i>Session 1A</i> CARDIAC DEFORMATION I Chair: J. Miller Washington University</p>	<p><i>Session 2A</i> NEW ULTRASOUND SYSTEMS Chair: H. Ermert University of Bochum</p>	<p><i>Session 3A</i> BULK ACOUSTIC WAVE SENSORS Chair: J. Vetelino University of Maine</p>	<p><i>Session 4A</i> PIEZOELECTRIC RESONATORS Chair: J. Vig U.S. Army</p>	<p><i>Session 5A</i> SAW MATERIALS Chair: P. Smith McMaster University</p>
		Tapas 1	Tapas 2	Tapas 3	Honolulu	South Pacific
10:30 a.m.		<p>1A-1 (Invited) Deformation Imaging by Ultrasound for the Assessment of Regional Myocardial Function. J. D'hooge^{*1,3}, P. Claus², B. Bijmens², J. Thoen³, F. Van de Werf², P. Suetens¹, and G. R. Sutherland², ¹Dept. of Electrical Engineering, ²Dept. of Cardiology, ³Dept. of Physics, Catholic University Leuven, Leuven, Belgium</p>	<p>2A-1 Tissue Harmonic Imaging with Improved Temporal Resolution. D. J. Napolitano, C. H. Chou, G. W. McLaughlin, T. L. Ji, L. Y. L. Mo, and B. D. DeBusschere, ZONARE Medical Systems</p>	<p>3A-1 The Study of Interaction of Chondrocyte Cells with Biofunctionalized Surfaces using TSM Sensors. A. Fertala¹, S. Kwoun², and R. Lec^{*2}, ¹Department of Dermatology and Cutaneous Biology, Thomas Jefferson Medical University, ²School of Biomedical Engineering, Science and Health Systems, Drexel University</p>	<p>4A-1 Acoustic Properties of Anisotropic Substrates. A. Ballato[*], US Army RD&E Command</p>	<p>5A-1 Acoustic Waves Measurements on SNGS Crystals and Determination of Material Constants. E. Chilla^{*1}, R. Kunze², A. Sotnikov², M. Weihnacht², J. Bohm³, R. B. Heimann⁴, M. Hengst⁴, and U. Straube⁵, ¹VI Tele Filter GmbH, Teltow, Germany, ²Leibniz Institute for Solid State and Materials Research, ³Institute for Crystal Growth, ⁴Freiberg University of Mining and Technology, ⁵Martin-Luther-University</p>
10:45 a.m.			<p>2A-2 Broad Beam Color Flow Imaging. L.Y.L. Mo[*], T.-L. Ji, C.-H. Chou, D. J. Napolitano, G. W. McLaughlin, and B. D. DeBusschere, Zonare Medical Systems, Inc.</p>	<p>3A-2 Dynamic Quartz Crystal Microbalance Sensor. T. A. Yakhno¹, A. G. Sanin¹, and A. Sarvazyan^{*2}, ¹Inst. of Applied Physics, Russian Academy of Science, ²Artann Laboratories, Lambertville, NJ</p>	<p>4A-2 Thickness Vibrations of Flat Piezoelectric Plates with Massy Electrodes of Unequal Thickness. J. A. Kosinski[*], US Army CECOM, Ft. Monmouth, NJ USA</p>	<p>5A-2 Investigations of New Materials, CTGS and CNGS, for SAW Applications. D. Puccio[*], D. C. Malocha, and N. Saldanha, Center for Applied Acoustoelectronic Technology, University of Central Florida</p>

11:00 a.m.	1A-2 An Analysis of the Angle Dependence in Strain (Rate) Imaging of the Left Ventricle. S. I. Rabben ¹ , F. Irgens ² , A. L. Haukanes ³ , and O. A. Smiseth ¹ , ¹ Inst for Surgical Research, Rikshospitalet University Hospital, ² Dep of Structural Engineering, NTNU, ³ DNV	2A-3 Programmable Ultrasound System and its Applications in Research. R. Managuli* and Y. Kim, University of Washington	3A-3 A Lateral Field Excited Liquid Acoustic Wave Sensor. Y. Hu*, L. French, and J. Vetelino, Laboratory for Surface Science & Technology, Orono, ME	4A-3 Numerical Analysis Of Thin Film BAW Resonators. K. M. Lakin* and K. G. Lakin, TFR Technologies, Inc.	5A-3 (Invited) Homogeneity of Langasite and Langatate Wafers for Acoustic Wave Applications. R. Fachberger ¹ , E. Riha ² , E. Born ³ , and P. Pongratz ¹ , ¹ Vienna University of Technology, Austria, ² EPCOS AG, Munich, Germany, ³ Technical University of Munich, Germany
11:15 a.m.	1A-3 Imaging of Wavefront Propagation of Rapid Velocity Components in Heart Wall at End-Systole. H. Kanai ¹ and Y. Koiwa ² , ¹ Graduate School of Engineering, Tohoku University, ² Graduate School of Medicine, Tohoku University	2A-4 A New Combined Open Research Platform for Ultrasound Radio-Frequency Signal Processing. A. Acquafresca ¹ , E. Biagi ¹ , R. Facchini ¹ , H. Fontara ² , M. H. Hoss ² , R. M. Lemor ² , L. Masotti ¹ , S. Mazzanti ¹ , A. Ricci ¹ , M. Scabia ¹ , P. K. Weber ² , and H. J. Welsch ² , ¹ University of Florence, Italy, ² Fraunhofer-Institut Biomedizinische Technik, St. Ingbert, Germany	3A-4 Doubly Rotated Resonators for Sensing the Properties of Liquids. Y. Kim*, J. Vig, and A. Ballato, US Army Communications-Electronics Command	4A-4 Finite Element Prediction of Q and Equivalent Electrical Parameters of Quartz Resonators. Y.-K. Yong ¹ , M. Tanaka ² , and T. Imai ² , ¹ Rutgers University, ² Seiko Epson	
11:30 a.m.	1A-4 Segmentation and Tracking of the Cardiac Muscle in Echocardiographic Sequences Using a Level Set Approach. I. Dydenko ¹ , D. Friboulet ¹ , J. D'hooge ² , B. Bijlens ² , and I. E. Magnin ¹ , ¹ Creatis, INSA Lyon, France, ² Catholic University of Leuven, Belgium	2A-5 A Portable, Low-Cost, Highly Integrated, 3D Medical Ultrasound System. M. I. Fuller*, T. N. Blalock, J. A. Hossack, and W. F. Walker, University of Virginia, Charlottesville, VA	3A-5 (Invited) Recent Trends in Bulk Acoustic Wave Resonator Sensors. P. R. Hauptmann* and R. Lucklum, Otto-von-Guericke-University Magdeburg, IMOS	4A-5 Spurious Resonance Free Bulk Acoustic Wave Resonators. J. Kaitila ¹ , M. Ylilampi ² , J. Ella ³ , and R. Aigner ¹ , ¹ Infineon Technologies, ² VTT Microelectronics Center, ³ Nokia Mobile Phones	5A-4 GaPO, SAW Devices: Measured and Predicted Propagation Properties. M. Pereira da Cunha ¹ , T. B. Pollard ¹ , H. Whitehouse ² , and P. Worsh ³ , ¹ University of Maine, ² Linear Measurements INC. Scientific, ³ Piezocryst Gesellschaft fur Piezoelektrische Technologien mbH
11:45 a.m.	1A-5 Temporal and Spatial Registration for Cardiac Strain Rate Imaging. X. Chen ¹ , X. Li ² , D. Sahn ² , K. Kim ¹ , H. Xie ¹ , and M. O'Donnell ¹ , ¹ Department of Biomedical Engineering, University of Michigan, Ann Arbor, MI, ² Department of Pediatrics, Oregon Health Science University, Portland, OR	2A-6 The Time Reversal Kaleidoscope: A New Concept of Smart Transducers for 3D Imaging. G. Montaldo*, D. Palacio, M. Tanter, and M. Fink, Laboratoire Ondes et Acoustique, E.S.P.C.I., C.N.R.S UMR 7587, Université Paris VII		4A-6 Observation of Flexural Modes in FBAR Resonators at MHz Frequencies. J. D. Larson III ¹ , R. C. Ruby ² , and K. L. Telschow ³ , ¹ Agilent Laboratories, Agilent Technologies, Palo Alto, CA, ² Semiconductor Products Group, Agilent Technologies, San Jose, CA, ³ Idaho National Engineering & Environmental Laboratory, Idaho Falls, ID	5A-5 Fabrication Techniques for Tunable SAW Resonators on Giant ΔE Layers. P. Smole ^{1,2} , W. Ruile ² , C. Korden ² , A. Ludwig ³ , S. Krassnitzer ⁴ , and P. Pongratz ¹ , ¹ Vienna University of Technology, Vienna, Austria, ² EPCOS AG, Munich, Germany, ³ CAESAR, Bonn, Germany, ⁴ UNAXIS Balzers AG, Balzers, Liechtenstein

1:30 p.m. – 3:00 p.m.

Monday, October 6, 2003

Honolulu, Hawaii

32

		<i>Session 1B</i> CARDIAC DEFORMATION II Chair: J. d'Hooge Catholic University of Leuven	<i>Session 2B</i> HIFU THERAPY Chair: L. Crum University of Washington	<i>Session 3B</i> GUIDED ACOUSTIC WAVE SENSORS Chair: L. Lynnworth GE Panametrics	<i>Session 4B</i> THIN FILM BAW FILTERS Chair: K. Lakin TFR Technologies	<i>Session 5B</i> HIGH TEMPERATURE SAW Chair: D. Malocha University of Central Florida
		Tapas 1	Tapas 2	Tapas 3	Honolulu	South Pacific
1:30 p.m.	<p>1B-1 High Frame Rate Cardiac 4D Imaging. J. C. Schlegel^{1*}, C. Vos², B. Mumm², N. Froese³, A. Geibel⁴, G. Heinrichs⁴, C. Jahnke⁴, and M. Handke⁴, ¹Toshiba Corporation, Medical Systems Company, ²TomTec GmbH, Unter-schleissheim, ³Toshiba Medical Systems Germany, ⁴Albert Ludwigs University</p>	<p>2B-1 (Invited) Extracorporeal High Intensity Focused Ultrasound Ablation in the Treatment of 1038 Patients with Solid Carcinomas. F. Wu^{1*} and Z.-B. Wang², ¹Clinical Center for Tumor Therapy of 2nd Affiliated Hospital, ²Chongqing University of Medical Sciences</p>	<p>3B-1 Animation of Surface Acoustic Wave Propagation on a Sphere for Precise Design of the Ball SAW Sensors. S. Ishikawa^{1*}, N. Nakaso², N. Takeda³, T. Mihara¹, Y. Tsukahara², and K. Yamanaka¹, ¹Tohoku University, ²Toppan Printing Co., Ltd., ³Ball Semiconductor Inc</p>	<p>4B-1 FBAR Rx Filters for Handset Front-end Modules with Wafer Level Packaging. K. Wang[*], M. Frank, P. Bradley, R. Ruby, W. Mueller, A. Barkknecht, and M. Gat, Agilent Technologies, Inc.</p>	<p>5B-1 SAW Resonators at High Temperatures. W. Buff^{1*}, M. Binhack¹, S. Klett¹, M. Hamsch¹, R. Hoffmann¹, W. Wallnoefer², and F. Krispel², ¹Technische Universitaet Ilmenau, D-98684 Ilmenau, Germany, ²Piezocryst GmbH, Hans List Platz 1, A-8020 Graz, Austria</p>	
1:45 p.m.	<p>1B-2 Quantitative Harmonic 3D Echocardiography with a Fast Rotating Ultrasound Transducer. M. M. Voormolen^{1,2}, B. J. Krenning¹, C. T. Lancée¹, F. J. ten Cate¹, J. R. T. C. Roelandt¹, A. F. W. van der Steen^{1,2}, and N. de Jong^{1,2,3}, ¹Erasmus MC, Rotterdam, The Netherlands, ²ICIN, Utrecht, The Netherlands, ³University of Twente, Enschede, The Netherlands</p>		<p>3B-2 Comprehensive Analysis of SAW Sensor Performance in Liquid Media by Green's Function Method. D. A. Powell[*], K. Kalantar-zadeh, and W. Wlodarski, RMIT University</p>	<p>4B-2 Fabrication of 5GHz Band Film Bulk Acoustic Wave Resonator Using ZnO Thin Film. R. Kubo[*], H. Fujii, H. Kawamura, M. Takeuchi, K. Inoue, Y. Yoshino, T. Makino, and S. Arai, Murata Manufacturing Co., Ltd.</p>	<p>5B-2 High - Temperature Stability of LiNbO₃ and Quartz Based SAW Devices. R. Hauser¹, L. Reindl², and J. Biniasch^{1,2}, ¹Carinthian Tech Research, ²Clausthal University of Technology</p>	

2:00 p.m.	1B-3 Myocardial Strain Imaging: Assessment of Contractile Function in Children with Congenital Heart Disease. C. L. de Korte ^{1,2} , E. Baas ^{1,2} , L. Kapusta ^{2,3} , O. Daniels ^{2,3} , and J. M. Thijssen ^{1,2} , ¹ Clinical Physics Laboratory, ² Children's Heart Center, ³ University Children's Hospital Nijmegen	2B-2 A Study of the Relationship between Ultrasound Exposure Conditions, Ablated Volume and Greyscale Appearance in ex vivo Tissue. G. ter Haar ¹ , J. Kennedy ² , and F. Wu ³ , ¹ Institute of Cancer Research, Sutton, UK, ² Churchill Hospital, Oxford, UK, ³ Chongqing University of Medical Sciences, Chongqing, China	3B-3 Thermoelastic Generation of Continuous Lamb Waves for Microfluidic Devices. T. Buma [*] and M. O'Donnell, University of Michigan, Ann Arbor, MI	4B-3 High C-Axis-Oriented AIN Film Using MOCVD for 5GHz-band FBAR Filter. C. M Yang [*] , K. Uehara, S. K. Kim, S. Kameda, H. Nakase, and K. Tsubouchi, Research Institute of Electrical Communication, Tohoku University	5B-3 Towards an Understanding of the Anomalous Electromechanical Behaviour of LGS and Related Compounds at High Temperatures. J. Schreuer ^{1,2} , C. Thybaut ² , M. Prestat ³ , J. Stade ⁴ , and S. Haussuehl ¹ , ¹ Goethe University Frankfurt a.M., Germany, ² ETH Zurich, Switzerland, ³ ETH Zurich, Switzerland, ⁴ University of Cologne, Germany
2:15 p.m.	1B-4 Myocardial Elastography-Comparison to Results Using MR Cardiac Tagging. E. E. Konofagou ¹ , W. Manning ² , K. Kissinger ² , and S. D. Solomon ¹ , ¹ Brigham and Women's Hospital - Harvard Medical School, Boston, MA, ² Beth Israel Deaconess Hospital - Harvard Medical School, Boston, MA	2B-3 A Transvaginal Image-Guided High Intensity Ultrasound Array. S. Vaezy ¹ , B. Huguenin ² , G. Fleury ² , J.r Flexman ¹ , and R. Held ¹ , ¹ Applied Physics Laboratory, University of Washington, ² Imasonic Corporation	3B-4 Improvement of LAMB Waves Sensors - Temperature Sensitivity Compensation. H. Jia, R. Duhamel, J.-F. Manceau [*] , M. De Labacherie, and F. Bastien, Laboratoire de physique et métrologie des Oscillateurs - CNRS	4B-4 Thin Film Bulk Acoustic Wave Devices for Applications at 5.2 GHz. G. G. Fattinger [*] , J. Kaitila, and R. Aigner, Infineon Technologies AG, Munich, Germany	5B-4 Reliable Curie Temperature Measurements for Chemical Compositions of LiTaO₃ Crystals for SAW Devices. J. Kushibiki, Y. Ohashi, and Y. Ogasawara [*] , Tohoku University, Sendai, Japan
2:30 p.m.	1B-5 A Kinematic Model for Simulating Physiological Left Ventricular Deformation Patterns - A Tool for Evaluation of Myocardial Strain Imaging. S. I. Rabben ¹ , A. L. Haukanes ² , and F. Irgens ³ , ¹ Inst for Surgical Research, Rikshospitalet University Hospital, Oslo, Norway, ² DNV, Oslo, Norway, ³ Dept of Structural Engineering, NTNU, Trondheim	2B-4 Experimental Methodologies for Studying the Effects of Perfusion on High Intensity Focused Ultrasound (HIFU). L. N. Couret ¹ , N. R. Miller ² , G. R. ter Haar ¹ , and I. H. Rivens ¹ , ¹ Institute of Cancer Research, Sutton, Surrey, U.K., ² Royal Marsden NHS Trust, Sutton, Surrey, U.K.	3B-5 Reflecting Love Waves by 90 degrees. R. Adler ¹ and J. Kent ² , ¹ Consultant, Northbrook, IL, USA, ² Elo TouchSystems, Inc., Fremont, CA, USA	4B-5 Solidly Mounted BAW Filters for 8 GHz based on AIN Thin Films. R. Lanz [*] and P. Muralt, Swiss Federal Institute of Technology, Lausanne, Switzerland	5B-5 Prediction of the Thermal Sensitivity of Surface Acoustic Waves excited under a Periodic Grating of Electrodes. Th. Pastureau ¹ , S. Ballandras ² , and W. Steichen ¹ , ¹ Temex Microsonics Sophia Antipolis France, ² LPMO CNRS Besancon France
2:45 p.m.	1B-6 Improving Strain-Derived Estimates of Regional Cardiac Performance by Accounting for Myocardial Anisotropy. R. L. Trousil [*] , S. M. Handley, K. D. Wallace, M. R. Holland, and J. G. Miller, Washington University, Saint Louis, MO	2B-5 Dual Solid Cone Coupling Surgical Applicators. R. Martin [*] and S. Vaezy, University of Washington, Seattle, WA / USA	3B-6 Hybrid Acoustic Waves in Piezoelectric Plates. I. E. Kuznetsova ¹ , B. D. Zaitsev ¹ , I. A. Borodina ¹ , A. A. Teplyh ¹ , V. V. Shurygin ¹ , and S. G. Joshi ² , ¹ SD IRE RAS, Saratov, Russia and ² Marquette University, Milwaukee, WI, USA	4B-6 Low-level Effects in SBARs and their Application to Device Optimisation. H. P. Loeb ¹ *, R. F. Milsom ² , C. Metzmacher ¹ , A. Tuinhout ³ , P. Lok ³ , and F. van Straten ³ , ¹ Philips Research Laboratories, ² Philips Research Laboratories, ³ Philips Discrete Semiconductors	5B-6 Material Parameters of rf Magnetron Sputtered SiO₂/LiNbO₃ Thin Films for Temperature Stable SiO₂/LiNbO₃ SAW Devices. M. Tomar [*] , V. Gupta, and K. Sreenivas, Department of Physics and Astrophysics, University of Delhi, Delhi-110007, India

3:00 p.m. – 4:30 p.m.

Monday, October 6, 2003, Poster Sessions

Honolulu, Hawaii

<p align="center"><i>Session P1A</i> STUDENT PAPER FINALISTS Chair: C. Ruppel EPCOS AG</p>	<p>P1A-8 Acoustic Modulation of Contrast Agents for Hepatic Flow Differentiation. R. T. Rhee*, J. M. Rubin, P. L. Carson, and J. B. Fowlkes, University of Michigan Medical Center</p>	<p>P1A-16 Development of an Ultrasonic Clutch. T. Koyama*, K. Takemura², and T. Maeno¹, ¹Keio University, Yokohama, Japan, ²Tokyo Institute of Technology, Yokohama, Japan</p>	<p>P1A-24 Fabrication and Characterization of cMUTs for Forward Looking Intravascular Ultrasound Imaging. J. G. Knight* and F. L. Degertekin, Georgia Institute of Technology</p>	<p align="center"><i>Session P1C</i> TISSUE CHARACTERIZATION I Chair: K. Nightingale Duke University</p>
<p>P1A-1 A New Imaging Strategy Utilizing Wideband Transient Response of Ultrasound Contrast Agents. D. E. Kruse*, C. K. Yeh², and K. W. Ferrara¹, ¹University of California, Davis, CA, ²National Taiwan University, Taipei, Taiwan</p>	<p>P1A-9 Ultrasonic Separation in Microfluidic Capillaries. M. K. Araz*, C. H. Lee, and A. Lal, SonicMEMS Laboratory, Cornell University, Ithaca, NY</p>	<p>P1A-17 Phase-Sensitive Absolute-Amplitude Measurements of Surface Waves Using Heterodyne Interferometry. K. Kokkonen¹, J. V. Knuutila¹, V. P. Plessky², and M. M. Salomaa¹, ¹Materials Physics Laboratory, Helsinki University of Technology, Espoo, Finland, ²GVR Trade SA, Neuchatel, Switzerland</p>	<p align="center"><i>Session P1B</i> CONTRAST AGENTS I Chair: P. Phillips Siemens Medical Solutions</p>	<p>P1C-1 An Analytic Method of Frequency Dependence of Acoustic Properties of Biological Media in the VHF/UHF Range Using the Bioultrasonic Spectroscopy System. N. Akashi¹, J. Kushibiki², and F. Dunn³, ¹Ichinoseki National College of Technology, Ichinoseki, Japan, ²Tohoku University, Sendai, Japan, ³University of Illinois, Urbana, IL, USA</p>
<p>P1A-2 Ultrasound Radiation Force on Acoustically-Active Lipospheres for Drug Delivery. M. Shortencarier¹, P. Dayton¹, D. Pearson¹, P. Schumann², R. Zutshi², T. Matsunaga², and K. Ferrara¹, ¹University of California at Davis, ²ImaRx Therapeutics, Inc</p>	<p>P1A-10 An Ultrasonic Evaluation for Degradation of Insulating Oil Using Fuzzy Inference. K. Nagamune¹, K. Taniguchi², S. Kobashi¹, K. Kondo¹, and Y. Hata¹, ¹Graduate School of Engineering, Himeji Institute of Technology, ²Kinden Corporation</p>	<p>P1A-18 Distribution of the Dynamic Strain and Stress Components within a Layered-Film of a SAW Resonator on LiTaO₃. F. Kubat¹, W. Ruile², T. Hesjedal³, and L. Reindl¹, ¹Institute of Electrical Information Technology, Clausthal University of Technology, Germany, ²EPCOS AG, Munich, Germany, ³Paul Drude Institute for Solid State Electronics, Berlin Germany</p>	<p>P1B-1 Intra-Thoracic Blood Volume Assessment by Dilution of Ultrasound Contrast Agents. M. Mischl¹, A.A.C.M. Kalker¹, and H.H.M. Korsten^{1,2}, ¹Technical University Eindhoven, ²Catharina Hospital Eindhoven</p>	<p>P1C-2 Development of Real-time Elastic Characteristics Measurement System for Ultrasound-based Tissue Characterization of Arterial Wall. M. Kato¹, M. Hashimoto¹, Y. Tan-naka¹, H. Hasegawa², Y. Koiba², and H. Kanai², ¹Matsushita Electric Industrial Co., Ltd., ²Tohoku University</p>
<p>P1A-3 Controlled Ultrasound Tissue Erosion. Z. Xu¹, A. Ludomirsky², L. Eun², T. L. Hall¹, B. C. Tran¹, J. B. Fowlkes¹, and C. A. Cain¹, ¹Department of Biomedical Engineering, University of Michigan, ²Division of Pediatric Cardiology, University of Michigan</p>	<p>P1A-11 High Temperature Ultrasonic Transducers for Monitoring of Micro-molding. M. Kobayashi¹, C.-K. Jen², C. Corbeil², Y. Ono², H. Hebert², and A. Derdouri², ¹McGill University, ²IMI, National Research Council of Canada</p>	<p>P1A-19 SAW Analysis of the Mg₂Zn_{1-x}O/SiO₂/Si System. H. Wu*, N. W. Emanetoglu, P. Wu, Y. Chen, and Y. Lu, Rutgers, the State University of New Jersey, New Brunswick, NJ</p>	<p>P1B-2 Acoustic Method for Real-Time Visualization of Microbubble Movements and Rupture. F. Guidi, E. Boni, M. Corsi, and P. Tortoli*, University of Florence, Firenze, Italy</p>	<p>P1C-3 Measurement of Elastic Moduli of Cylindrical Shell at Multiple Frequencies by Remote Actuation for Assessment of Viscoelastic Properties of Arterial Wall. H. Hasegawa¹, H. Kanai¹, Y. Koiba¹, and J. Butler², ¹Tohoku University, Sendai, Japan, ²Harvard University, Boston, USA</p>

<p>P1A-4 Shear Wave Anisotropy Imaging. S. Hsu*, M. Palmeri, K. Nightingale, S. McAleavey, J. Dahl, and G. Trahey, Duke University</p>	<p>P1A-12 Pure SH SAW on Single Crystal KnbO_3 for Liquid Sensor Applications. T. B. Pollard*, M. Pereira da Cunha, and J. F. Vetelino, University of Maine</p>	<p>P1A-20 Design of Miniaturized RF SAW Duplexer Package. H. Dong*¹, T. X. Wu¹, C. A. Finch², B. P. Abbott², and K. S. Cheema², ¹University of Central Florida, Orlando, FL, ²SAWTEK Inc., Apopka, FL</p>	<p>P1B-3 Flow Estimation Using Subharmonics of Microbubbles. M. Lo, D.-H. Tsai, and J. Tsao*, Graduate Institute of Communication Engineering, National Taiwan University</p>	<p>P1C-4 Breast Cancer Diagnosis Based on Ultrasound RF Echo Modeling and Physician's Level of Confidence. B. Alacam*, B. Yazici, and N. Bilgutay, Drexel University, PA, USA</p>
<p>P1A-5 Off-Axis Scatterer Filters for Improved Aberration Measurements. J. J. Dahl* and G. E. Trahey, Duke University, Durham, NC</p>	<p>P1A-13 Optical Interactions in ZnO-TeO_2 Bi-layer for AO Device Applications. R. Nayak*, V. Gupta, and K. Sreenivas, Department of Physics and Astrophysics, University of Delhi, Delhi - 110008, India</p>	<p>P1A-21 Collapsed Region Operation of Capacitive Micromachined Ultrasonic Transducers based on Wafer-Bonding Technique. Y. Huang*, B. Bayram, A. S. Ergun, E. Haeggström, C. H. Cheng, and B. T. Khuri-Yakub, Edward L. Ginzton Laboratory, Stanford University, Stanford, CA 94305</p>	<p>P1B-4 Pulsing Schemes for Nonlinear Imaging of Ultrasound Contrast Agents. M. A. Averkiou*, Philips Medical Systems, Bothell, WA, USA</p>	<p>P1C-5 Ultrasonic Spectroscopy Describes the Microstructure of Tendon. T. C. Garcia, M. F. Insana*, and W. J. Hornof, University of California, Davis, CA, USA</p>
<p>P1A-6 Integrated 3D Intracardiac Echo and Ultrasound Ablation. K. L. Gentry* and S. W. Smith, Duke University Department of Biomedical Engineering</p>	<p>P1A-14 Analysis of a Surface Acoustic Wave Motor. P. J. Feenstra* and P. C. Breedveld, University of Twente, Enschede, Netherlands</p>	<p>P1A-22 Real-Time Rectilinear 3-D Ultrasound Using Receive Mode Multiplexing. J. T. Yen* and S. W. Smith, Duke University</p>	<p>P1B-5 Post-beamforming Volterra Filters for Contrast-Assisted Ultrasonic Imaging: In Vivo Results. P. Phukpattaranont*, M. F. Al-Mistarihi, and E. S. Ebbini, University of Minnesota Twin Cities, MN, USA</p>	<p>P1C-6 Multifrequency Ultrasound Tomography Applied to Prostate Imaging. A. Cheryauka*¹ and G. Gullberg², ¹Radiology Dept, University of Utah, ²E.O.Lawrence Berkeley National Laboratory</p>
<p>P1A-7 An Ultrasonic Method to Measure Effective Temperature in the Vicinity of Laser-Induced Optical Breakdown. M. J. Zohdy*, C. Tse, M. O'Donnell, and J. Y. Ye, University of Michigan, Ann Arbor, MI</p>	<p>P1A-15 Dyadic Green's Function of a Laminar Plate. A. Reinhardt, V. Laude, and S. Ballandras, LPMO/CNRS IMFC, Universite de France-Comte, 32 Av. de l'Observatoire, 25044 Besancon Cedex, France</p>	<p>P1A-23 Interdigital Capacitive Micromachined Ultrasonic Transducers for Microfluidic Applications. J. McLean* and F. L. Degertekin, Georgia Institute of Technology, Atlanta, GA</p>		

3:00 p.m. – 4:30 p.m.

Monday, October 6, 2003, Poster Sessions

Honolulu, Hawaii

<p><i>Session P1D</i> DOPPLER Chair: P. Hoskins University of Edinburgh</p>	<p><i>Session P1E</i> BEAMFORMING I Chair: J. Hossack University of Virginia</p>	<p><i>Session P1F</i> TISSUE ELASTICITY Chair: J. Ophir University of Texas, Houston</p>	<p><i>Session P1G</i> THERAPY AND BIOEFFECTS Chair: L. Crum University of Washington</p>	<p>P1H-2 Micromachined Components for Ultrasonic Transducers and Scanners. R. Farlow*, W. Galbraith, J. Puccio, and G. Hayward, University of Strathclyde</p>
<p>P1D-1 The Effect and Mechanisms of Ultrasound Transducer Degradation on the Quality and Clinical Efficacy of Doppler Ultrasound Examinations. J. Gessert^{*1}, M. Schafer², and G. W. Moore¹, ¹Sonora Medical Systems, Inc., Longmont, CO, ²Sonic Tech, Wayne, PA</p>	<p>P1E-1 Time Domain Numerical Solution of the KZK Equation for Modeling Sound Beams Radiated by Rectangular Sources. M. A. Averkiou^{*1} and V. A. Khokhlova², ¹Philips Medical Systems, Bothell, WA, USA, ²Moscow State University, Moscow, Russia</p>	<p>P1F-1 Lesion Size Ratio for Differentiating Breast Lesions. T. J. Hall^{*1}, W. E. Svensson², P. L. Von Behren³, Y. Zhu⁴, J. Malin³, C. S. Spalding⁴, A. Connors², D. Chopra², A. Rattensingh², and C. Lowery³, ¹University of Wisconsin-Madison, ²Charing Cross Hospital, London, UK, ³Siemens Medical Solutions Ultrasound Group, ⁴University of Kansas Medical Center</p>	<p>P1G-1 Characterization and FEA Simulation for a HIFU Phantom Material. S. Howard*, J. Yuen, P. Wegner, and C. Zanelli, Onda Corporation</p>	<p>P1H-3 Development of Water Immersed Type Ultrasound Probe with PZT Film Deposited by Hydrothermal Method. N. Katsura^{*1}, M. Ishikawa², T. Sato¹, M. Takeuchi¹, N. Kawashima¹, S. Takeuchi¹, and M. Kurosawa², ¹Toin University of Yokohama, ²Tokyo Institute of Technology</p>
<p>P1D-2 Ultrasonic Intensity and Doppler Power Measurements with Uniform and Non-Uniform Polyethylene Tubes. G. Bambi^{*1}, R. S. Thompson², and P. Tortoli¹, ¹University of Florence, Florence, Italy, ²University of Sydney, Sydney, Australia</p>	<p>P1E-2 Focusing beyond the Transducer Aperture Limitation using Parallel Beamforming and Non-Linear Processing. P. Munk*, SACLANT Undersea Research Centre</p>	<p>P1F-2 Human Prostate Elastography: In Vitro Study. R. Souchon¹, A. Gelet^{1,2}, J. Ophir³, and J. Y. Chapelon^{*1}, ¹INSERM Unite 556, Lyon, France, ²Edouard Herriot Hospital, Lyon, France, ³University of Texas, Houston TX, USA</p>	<p>P1G-2 Novel Adaptive Control Methods for Ultrasound Thermal Treatment with a Two-Dimensional Tapered Array. L. Sun, J. Schiano, and N. Smith, Pennsylvania State University</p>	<p>P1H-4 Multilayered Piezoelectric Composite Transducers. R. L. O'Leary*, A. C. S. Parr, and G. Hayward, Centre for Ultrasonic Engineering, Glasgow, U.K</p>
<p>P1D-3 Pulsed Phase Lock Loop Technique to Measure Intracranial Pressure Non-invasively. T. Ueno^{*1}, B. R. Macias¹, W. T. Yost², and A. R. Hargens¹, ¹University of California, San Diego, ²NASA Langley Research Center</p>	<p>P1E-3 Aberration Correction With the Overdetermined, Fan-filtering (OFF) Algorithm. M. A. Haun*, D. L. Jones, and W. D. O'Brien, Jr., Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign</p>	<p>P1F-3 A Feasibility Study of Prostate Needle Biopsy Supported by Freehand Elasticity Imaging. M. Yamakawa^{*1}, N. Nitta¹, T. Shiina¹, T. Matsumura², S. Tamano², T. Mitake², N. Miyanaga³, and H. Akaza³, ¹University of Tsukuba, ²Hitachi Medical Corporation, ³University of Tsukuba</p>	<p>P1G-3 A New Brachytherapy Seed Design for Improved Ultrasound Visualisation. A. Tornes* and M. Eriksen, Amersham Health, Oslo, Norway</p>	<p>P1H-5 3D Ultrasound Imaging System using Fresnel Ring Array. S. Tamano^{*1}, M. Yamazaki¹, S. Sano¹, K. Hara², J. Sakano², and Y. Miwa³, ¹Hitachi Medical Corporation, Chiba, Japan, ²Hitachi Ltd., Ibaraki, Japan, ³Hitachi Ltd., Tokyo, Japan</p>

<p>P1D-4 Doppler Measurement Using A Pair of FM-Chirp Signals. K. Iwashita*, T. Moriya, and N. Tagawa, Tokyo Metropolitan University, Tokyo, Japan</p>	<p>P1E-4 SNR-dependent Filter Design for Improving Depth of Field Using Modified Least Squares. G.-S. Jeng*, S. Huang, P.-C. Li, and J. Tsao, Department of Electrical Engineering, Taipei, Taiwan, R.O.C.</p>	<p>P1F-4 Myocardial Strain Imaging Based on Three-Dimensional Motion Tracking. N. Nitta* and T. Shiina, Institute of Information Sciences and Electronics, University of Tsukuba, Tsukuba, Japan</p>	<p>P1G-4 3 Dimensional Ultrasonic Monitoring of Interstitial Thermal Tumour Therapies - In Vivo Results. R. M. Lemor**1, M. Hoss1, L. Peter1, E. C. Weiss1, S. H. Tretbar1, H. J. Cappius2, and C. T. Germer3, 1Fraunhofer-Institute for Biomedical Technology, 2Laser- und Medizin-Technologie GmbH, 3Universitätsklinikum Benjamin Franklin der Freien Universität</p>	<p>P1H-6 Vibrations Modes in Ultrasonic Bessel Transducer. J. A. Eiras*1, Eduardo Moreno2, H. Calas2, A. Aulet3, C. A. Negreira3, L. Leija4, and G. Gonzales4, 1Universidade Federal de Sao Carlos / Brasil, 2CIMAF / Cuba, 3Universidad de la Republica / Uruguay, 4CINVESTAV / Mexico</p>
<p>P1D-5 Estimating Systolic Contractile Forces using Tissue Doppler Myocardial Imaging and Mechanical Modeling. M. Mc Laughlin*, P. Claus, J. D'hooge, G. R. Sutherland, and B. Bijmens, Katholieke Universiteit Leuven, Leuven, Belgium</p>	<p>P1E-5 Mechanical Focusing for High Intensity Ultrasound. S. Vaezy*, V. Zderic, B. Miller, A. Shahrazad, and S. Bailey, Applied Physics Laboratory, University of Washington</p>	<p>P1F-5 A Validation Study on RF-based Two-Dimensional Cardiac Strain Estimation. S. Langeland*1, J. D'hooge1, T. Claessens2, P. Claus1, T. Langeland1, P. Verdonck2, P. Suetens1, G. R. Sutherland1, and B. Bijmens1, 1Catholic University Leuven, Belgium, 2Ghent University, Belgium</p>	<p>P1G-5 Imaging of the Effect of Acupuncture Needling on Human Connective Tissue In Vivo. E. E. Konofagou*1, J. Wu2, G. J. Badger2, B. S. Garra2, J. Ophir3, and H. M. Langevin2, 1Brigham and Women's Hospital - Harvard Medical School, Boston, MA, 2University of Vermont, Burlington, VT, 3University of Texas Medical School, Houston, TX</p>	<p>P1H-7 Medical Transducer Arrays using Composite Materials for Acoustic Matching Layers. T. Kondo* and H. Fujimoto, Tokushima Bunri University, Sanuki City, Japan</p>
<p>P1D-6 Quantification of Abdominal Aortic Aneurysms Dynamic Behavior Using TDI. L. Rouet*1, A. Long2, and O. Bonnefous1, 1Philips Research Paris, France, 2European Hospital Paris, France</p>	<p>P1E-6 Imaging With Large-Aperture Arrays with Heterogeneous Directive Elements. H. Yao and E. S. Ebbini*, University of Minnesota, Twin Cities, MN, USA</p>	<p>P1F-6 Ultrasonic Measurement of Flow-Mediated Vasodilatation: Clinical Results. K. M. Hiltawsky* and H. Ermert, Institute for RF Engineering, Ruhr University Bochum</p>	<p style="text-align: center;">Session P1H TRANSDUCER DESIGN AND FABRICATION Chair: R. Tancrell Airmar Technology Corp.</p>	<p>P1H-8 A Study of Inversion Layer Transducers. Y. Estanbouli*, G. Hayward, and J. C. Barbenel, University of Strathclyde, Glasgow, Scotland, UK</p>
				<p>P1H-1 Implementation of Multilayer Ultrasonic Transducer Structures with Optimised Non-uniform Layer Thicknesses. Z. Wu*, A. Abrar, G. McRobbie, S. Gallagher, and S. Cochran, Microscale Sensors, University of Paisley</p>

3:00 p.m. – 4:30 p.m.

Monday, October 6, 2003, Poster Sessions

Honolulu, Hawaii

<p><i>Session P1I</i> ACOUSTIC WAVE SENSORS Chair: M. P. da Cunha University of Maine</p>	<p><i>Session P1J</i> APPLICATIONS OF ACOUSTIC WAVE TRANSDUCERS AND SENSORS Chair: R. Addison Rockwell International</p>	<p><i>Session P1K</i> NDE SIGNAL PROCESSING Chair: N. Bilgutay Drexel University</p>	<p><i>Session P1L</i> SURFACE ACOUSTIC WAVE SENSORS Chair: R. Addison Rockwell International</p>	<p>P1M-3 Resonant Mode Calculations of Contoured Doubly-Rotated Quartz Crystals using a Variational Approach. E. P. EerNisse*, Quartzdyne, Inc., Salt Lake City, UT</p>
<p>P1I-1 A Novel Lamb-Mode Liquid Sensor Array. I. V. Anisimkin*, Institute of Radioengineering and Electronics, RAS</p>	<p>P1J-1 Flow-through Multiple Transducer Reactor Design for Power Ultrasonic Processing. R. Breeuwer*, TNO TPD</p>	<p>P1K-1 A High Fidelity Time-Frequency Representation for Ultrasonic Signal Analysis. R. Demirli and J. Saniie*, Illinois Institute of Technology, Chicago, IL</p>	<p>P1L-1 LGS Shear Horizontal SAW Devices for Biosensor Applications. E. Berkenpas*, S. Bitla, P. Millard, and M. Pereira da Cunha, University of Maine</p>	<p>P1M-4 Focusing Nondiffracting BAW Transducer. J. Salo and M. M. Salomaa*, Materials Physics Laboratory, Helsinki University of Technology, Espoo, Finland</p>
<p>P1I-2 Fabrication of Multi-Functional Integrated Liquid Sensors Using MEMs and Film-Bonding Technology. C. Kaneshiro*, K. Koh, K. Hohkawa, A. Yamamura, and K. Matsumoto, Kanagawa Institute of Technology</p>	<p>P1J-2 Numerical Simulation of Ultrasonic Transit-Time Flowmeter Performance in High Temperature Gas Flows. M. Kupnik¹, P. O'Leary¹, A. Schröder², and I. Rungger², ¹Institute for Automation, University of Leoben, Austria, ²Institute of General Physics, Vienna University of Technology, Austria</p>	<p>P1K-2 Wigner-Ville Distribution Enhancement for 2D Flaws Location. L. Medina* and E. Rubio, DISCA-IIMAS, UNAM</p>	<p>P1L-2 Multi-Frequency and Multi-Mode GHz Surface Acoustic Wave Sensor. W. Seidel*, B. Haase, and T. Hesjedal, Paul Drude Institute, Berlin, Germany</p>	<p>P1M-5 Analysis of Thickness-Extensional Waves Propagating in the Lateral Direction of Solidly Mounted Piezoelectric Thin Film Resonators. K. Nakamura¹, S. Sato¹, S. Ohta¹, K. Yamada¹, and A. Doi², ¹Graduate School of Engineering, Tohoku University, ²Kinseki, Ltd.</p>
<p>P1I-3 Study of LiTaO₃ Shear Wave Resonator for Viscosity Sensor of Polymer Liquid in MHz Range. N. Wakatsuki and M. Bannai*, Ishinomaki Senshu University</p>	<p>P1J-3 Industrial System to Perform the Microbiological Control of UHT Milk in Carton-like Packages by Ultrasound. F. Montero de Espinosa*, L. Elvira, Y. Gómez-Ullate, and P. Resa, Instituto de Acustica</p>	<p>P1K-3 Design of a Planar Array of Sensors for 3D Target Location using Genetic Algorithms. L. Medina*, E. Rubio, E. Diaz, and K. Rodriguez, DISCA-IIMAS, UNAM, Mexico D. F., 04510</p>	<p>P1L-3 Influence of Non-uniform Strain on Characteristics of One-port SAW Resonators. V. Kalinin* and A. Leigh, Transense Technologies plc, Upper Heyford, U.K.</p>	<p>P1M-6 Spectrum of Parametrically Exited Bulk Acoustic Wave Composite Resonator. G. D. Mansfeld*, N. I. Polzikova, A. O. Raevskii, and I. G. Prokhorova, Institute of Radioengineering and Electronics, RAS</p>

<p>P11-4 Sezawa Wave Pressure Sensor using a ZnO/Si Structure. A. Talbi, F. Sarry, L. Lebrizoual, M. Elhikiki, O. Elmazria*, and P. Alnot, Laboratoire de Physique des Milieux Ionises et Applications</p>	<p>P1J-4 Broadband Ultrasonic Transducer for an Artificial Bat Head. A. Streicher*¹, R. Müller², H. Peremans³, and R. Lerch¹, ¹Department of Sensor Technology, University of Erlangen Nuremberg, Germany, ²University of Tübingen, Germany, ³University of Antwerp, Belgium</p>	<p>P1K-4 The Effectiveness of the Continuous Wavelet Transform in the Analysis of Elastic Waves. Y. Y. Kim*, J. C. Hong, S. W. Han, I. K. Kim, and C. I. Park, Seoul National University, Seoul, Republic of Korea</p>	<p>P1L-4 Modeling of Double SAW Resonator Remote Sensor. M. Binhack*, S. Klett, E. Guliyev, W. Buff, M. Hamsch, and R. Hoffmann, Technische Universitaet Ilmenau, D-98684 Ilmenau, Germany</p>	<p><i>Session P1N</i> PHYSICAL ACOUSTICS III Chair: J. Brown JB Consulting</p>
<p>P11-5 A Model of Contact Mechanism for a Quartz-Crystal Tuning-Fork Tactile Sensor. H. Itoh*, K. Ishikawa, Y. Fujiwara, and T. Mizushima, Shinshu University</p>	<p>P1J-5 Impact of a Wireless Power Transmission System using an Ultrasonic Air Transducer for Low-Power Mobile Applications. T. Ishiyama*, Y. Kanai, J. Ohwaki, and M. Mino, NTT Energy and Environment Systems Laboratories</p>	<p>P1K-5 Modal Analysis of a Mechanical Heart Valve by Vibro-Acoustography. X. Zhang*, M. Fatemi, R. R. Kinnick, and J. F. Greenleaf, Mayo Clinic</p>	<p><i>Session P1M</i> RESONATORS Chair: B. Sinha Schlumberger-Doll Research Center</p>	
<p>P11-6 Piezoelectric Angular Acceleration Sensor. Y. Tomikawa*¹ and S. Okada², ¹Yamagata University, ²Microstone Co. Ltd</p>	<p>P1J-6 A High Temperature and Broadband Immersion 1-3 Piezo-Composite Transducer for Accurate Inspection in Harsh Environments. Q. Xue*, M. Stanton, and G. Elfbaum, GE Panametrics, Inc., Waltham, MA</p>	<p>P1K-6 Investigating the Feasibility of Using Principal Component Analysis for Ultrasonic Classification of Gas Mixtures. P.-E. Martinsson* and J. E. Carlson, EISLAB, Dept. of Computer Science and Electrical Engineering, Lulea University of Technology, Sweden</p>	<p>P1M-1 Design and Fabrication of High Frequency Bulk Acoustic Wave Transducers Using Interdigital Transducers. M. Deng*, Department of Physics, Logistics Engineering University, Chongqing 400016, China</p>	<p>P1N-2 The Optimum Distribution of Cavitation Bubbles for a Flow Rate Measurement using Ultrasonic Doppler Method. Y. Koike*¹, H. Kikura², S. Wada², T. Taishi², M. Aritomi², and M. Mori³, ¹Faculty of Engineering, Shibaura Institute of Technology, ²Tokyo Institute of Technology, ³Tokyo Electric Power Company</p>
<p>P11-7 Simulation of Quartz Crystal Gyro-Sensor Using Double-Ended Tuning Fork Resonator for Detection of Two-Axial Angular Velocities. K. Sato*^{1,2}, A. Ono¹, and Y. Tomikawa², ¹Toyo Communication Equipment Co., Ltd., Kanagawa, Japan, ²Yamagata University, Yonezawa, Japan</p>	<p>P1J-7 Ultrasound Simulation for 3D-Axisymmetric Models. J. J. Kaufman*^{1,2}, G. M. Luo^{3,4}, and R. S. Siffert², ¹CyberLogic, Inc., New York, NY, ²The Mount Sinai School of Medicine, New York, NY, ³New York Department of Veterans Affairs Medical Center, New York, NY, ⁴Department of Rehabilitation Medicine, NYU Medical Center, New York, NY</p>	<p>P1K-7 Polynomial Method Applied to Acoustic Waves in Inhomogeneous Cylinders. L. Elmaïmouni*, J. E. Lefebvre, T. Gryba, and V. Zhang, IEMN DOAE UMR CNRS 8520, Valenciennes, France</p>	<p>P1M-2 Design of Coupled Resonator Filters using Admittance and Scattering Matrices. A. Reinhardt*¹, V. Laude¹, R. Lanz², P. Muralt², M. Solal³, S. Ballandras¹, and W. Steichen³, ¹Universite de France-Comte, ²Ecole Polytechnique Federale de Lausanne (EPFL), ³Temex Microsonics</p>	<p>P1N-3 The Use of Transparent Aqueous Gels for Observing and Recording Cavitation Activity Produced by High Intensity Focused Ultrasound. A. R. Williams*¹ and D. L. Miller², ¹Haemacoustics Ltd., ²University of Michigan</p>

3:00 p.m. – 4:30 p.m.

Monday, October 6, 2003, Poster Sessions

Honolulu, Hawaii

<p>P1N-4 Use of a Sapphire Fiber as a Flexible Transmission Line. T. Moriya^{*1}, Y. Seki², N. Tagawa¹, and Y. Tanahashi³, ¹Tokyo Metropolitan University, ²Nippon Cable System Inc., ³Takamori Clinic</p>	<p>P1O-2 Calculation of Temperature Dependency of Acoustic Properties of Diatomic Gases using Spectroscopic Data. E. Martinsson[*], Department of Computer Science and Electrical Engineering, Lulea University of Technology, Sweden</p>	<p><i>Session P1P</i> PHYSICAL ACOUSTICS V Chair: B. Tittmann Pennsylvania State University</p>	<p>P1P-4 Electronic Control Method for a Resonance Frequency of a Piezoelectric Device using GIC Circuit. Y. Koike[*] and H. Tayama, Faculty of Engineering, Shibaura Institute of Technology</p>	
<p>P1N-5 Thermal Therapy Using Flexible Fibers as Transmission Lines (SoFT). T. Moriya^{*1}, N. Tagawa¹, Y. Tanahashi², M. Seki³, Y. Takamura⁴, and S. Yagi⁴, ¹Tokyo Metropolitan University, ²Takamori Clinic, ³Nippon Cable System Inc., ⁴Meisei University</p>	<p>P1O-3 Simulation of the Translational Motion of Single and Many Bubbles in an Ultrasonic Field. P. Koch[*], D. Krefting, R. Mettin, and W. Lauterborn, Drittes Physikalisches Institut, Goettingen University</p>	<p>P1P-1 Origins of 1/f Noise in Crystal Oscillators. V. F. Kroupa[*] and V. Kroupa, Institute of Radio Engineering, & Electronics Academy of Sciences of the Czech Republic Praha</p>		
<p><i>Session P1O</i> PHYSICAL ACOUSTICS IV Chair: K. Liang Schlumberger-Doll Research Center</p>	<p>P1O-4 Modal Expansion Analyses of Second-Harmonic Generation of Lamb Modes in Layered Planar Structures. M. Deng[*], Department of Physics, Logistics Engineering University</p>	<p>P1P-2 The Development of New Configurations of BAW Composite Filter Structures. G. D. Mansfeld[*], S. G. Alekseev, and I. M. Kotelyansky, Institute of Radioengineering and Electronics RAS, Moscow, Russia</p>		
<p>P1O-1 Definition of Electromechanical Coupling Coefficient for Bulk Acoustic Waves from Energy Consideration. B. D. Zaitsev[*], I. E. Kuznetsova, and A. A. Teplyh, SD IRE RAS, Saratov, Russia</p>	<p>P1O-5 In-situ Study of Acoustomigration by Scanning Acoustic Force Microscopy. T. Hesjedal^{*1}, F. Kubat², W. Seidel¹, W. Ruile³, and L. Reindl², ¹Paul Drude Institute, ²Institute of Electrical Information Technology, Clausthal University of Technology, ³EPCOS AG</p>	<p>P1P-3 Design and Optimization of Locally Resonating Sonic Crystals. M. Hirsekorn[*] and P. P. Delsanto, Politecnico di Torino, Turin, Italy</p>		

Oral Sessions continue next page

4:30 p.m. – 6:00 p.m.

Monday, October 6, 2003

Honolulu, Hawaii

		<i>Session 1C</i> VASCULAR IMAGING Chair: C. de Korte University Medical Centre Nijmegen	<i>Session 2C</i> BIOEFFECTS AND DOSIMETRY Chair: J. Fowlkes University of Michigan	<i>Session 3C</i> SIGNAL PROCESSING AND IMAGING Chair: J. Saniie Illinois Institute of Technology	<i>Session 4C</i> PHYSICAL ACOUSTICS I Chair: S. Zerong Schlumberger-Doll Research Center	<i>Session 5C</i> SAW ACOUSTIC EFFECTS Chair: V. Plessky GVR Trade SA
		Tapas 1	Tapas 2	Tapas 3	Honolulu	South Pacific
42	4:30 p.m.	1C-1 High Frequency Harmonic Imaging in Presence of Intravascular Stents. M. E. Frijlink ^{*1} , D. E. Goertz ^{1,2} , F. S. Foster ³ , and A. F. W. van der Steen ^{1,2} , ¹ Erasmus MC, Rotterdam, the Netherlands, ² Interuniversity Cardiology Institute of the Netherlands, the Netherlands, ³ University of Toronto, Canada	2C-1 Thermal Effects Associated with Acoustic Radiation Force Impulse Imaging. M. L. Palmeri [*] and K. R. Nightingale, Duke University, Durham, NC	3C-1 Ultrasonic Data Compression via Parameter Estimation for NDE Applications. G. Cardoso [*] and J. Saniie, Illinois Institute of Technology	4C-1 (Invited) Air-Coupled Ultrasound and Applications to Rapid Elastic Property Characterization. D. E. Chimenti [*] , S. D. Holland, and D. Fei, Iowa State University, Ames, IA	5C-1 Acoustically Driven NEMS Resonators. F. W. Beil ¹ , R. H. Blick ² , and A. Wixforth ³ , ¹ Center for NanoScience, Munich, Germany, ² University of Wisconsin, Madison, ³ University of Augsburg, Germany
	4:45 p.m.	1C-2 Initial Results from a Forward-Viewing Ring-Annular Ultrasound Array for Intravascular Imaging. Y. Wang ^{*1} , D. Stephens ² , and M. O'Donnell ³ , ¹ Beckman Laser Institute, ² Jomed Inc., ³ University of Michigan	2C-2 The Role of PRF in Ultrasonic Contrast Agent Stability and Cell Death. S. Samuel [*] , D. L. Miller, and J. B. Fowlkes, University of Michigan, Ann Arbor, MI	3C-2 A Noise-Tolerant Group Delay Estimator Applied to Dispersion Measurement in Gases. J. E. Carlson ^{*1} , F. Sjöberg ² , and P.-E. Martinsson ¹ , ¹ EISLAB, Lulea University of Technology, SE-971 87 Lulea, Sweden, ² Div. of Signal Processing, Lulea University of Technology SE-971 87 Lulea, Sweden		5C-2 SAW Device Analysis Using a Combination of FEM/BEM Calculation and Scanning Interferometer Measurements. S. Chamaly ^{*1} , R. Lardat ¹ , T. Pastureau ¹ , W. Steichen ¹ , O. Holmgren ² , M. Kuitunen ² , J. V. Knuutila ² , and M. M. Salomaa ² , ¹ Temex Microsonics, Sophia-Antipolis, France, ² Helsinki University of Technology, Finland

5:00 p.m.	1C-3 Enhanced Vascular Strain Imaging Using Arterial Pressure Equalization. K. Kim ^{*1} , W. F. Weitzel ² , J. M. Rubin ³ , H. Xie ¹ , X. Chen ¹ , and M. O'Donnell ¹ , ¹ Department of Biomedical Engineering, University of Michigan, ² Department of Internal Medicine, University of Michigan, ³ Department of Radiology, University of Michigan	2C-3 Fibroblast Proliferation Dependence on Insonification of Low Intensity Ultrasounds at Different Duty Cycles. S. H. Wang ^{*1} , Y. S. Ji ¹ , and W. T. Li ² , ¹ Chung Yuan Christian University, Chung Li, Taiwan, ROC., ² Biomedical Engineering Center, ITRI, Taiwan, ROC.	3C-3 Design and Performance Evaluation of Frequency-Diverse Orthogonal Transforms for Ultrasonic Flaw Detection. E. Oruklu [*] and J. Saniie, Illinois Institute of Technology	4C-2 Dyadic Green's Function of a Laminar Plate. A. Reinhardt, V. Laude, and S. Ballandras, LPMO/CNRS IMFC, Université de France-Comte, 32 Av. de l'Observatoire, 25044 Besancon Cedex, France	5C-3 Ball SAW Device for Hydrogen Gas Sensor. K. Yamanaka ^{*1} , S. Ishikawa ¹ , N. Nakaso ² , N. Takeda ³ , T. Mihara ¹ , and Y. Tsukahara ² , ¹ Tohoku University, ² Toppan Printing Co., Ltd., ³ Ball Semiconductor Inc.
5:15 p.m.	1C-4 Electronic Staining: Elasticity Imaging of Atheroma with Transcutaneous Ultrasound. H. Kanai ^{*1} , H. Hasegawa ¹ , J. Inagaki ¹ , M. Ichiki ² , F. Tezuka ³ , and Y. Koiwa ⁴ , ¹ Graduate School of Engineering, Tohoku University, ² Sendai Hospital of East Railway Company, ³ National Sendai Hospital, ⁴ Graduate School of Medicine, Tohoku University	2C-4 Ventricular Premature Beats Induced by Contrast Echocardiography in an Animal Model. R. Bendiksen ^{*1} , H. Rasmussen ¹ , L. Hoff ¹ , A. C. M. Brauns ² , O. Moen ¹ , E. Gustavsson ¹ , A. J. Healey ¹ , J. Ostensen ¹ , and P. A. van der Wouwe ² , ¹ Amersham Health, ² Onze Lieve Vrouwe Gasthuis, Amsterdam, The Netherlands	3C-4 An Adaptive Technique using Measured Green's Functions for Extending Spatial-Temporal Coherence in Aberrating Materials. M. Clark [*] , J. Hernandez, S. D. Sharples, and M. G. Somekh, University of Nottingham	4C-3 Determination of Lateral Mode Dispersion from Full-field Imaging of Film Bulk Acoustic Resonator Motion. K. Telschow ^{*1} and J. Larson III ² , ¹ Idaho National Engineering & Environmental Laboratory, Idaho Falls, ID, USA, ² Agilent Technology Laboratories, Palo Alto, CA, USA	5C-4 A 3-Dimensional Finite Element Approach for Simulating Acoustic Wave Propagation in Layered SAW Devices. S. J. Ippolito [*] , K. Kalantar-zadeh, D. A. Powell, and W. Wlodarski, RMIT University
5:30 p.m.	1C-5 Thermal Dielectric Imaging with Microwave Radiation. Y. Shi [*] , R. S. Witte, S. M. Milas, J. H. Neiss, X. C. Chen, C. A. Cain, and M. O'Donnell, University of Michigan, Ann Arbor, MI	2C-5 Simulation and Measurements of Temperature Rise in a 40MHz Ultrasound Beam. E. Cherin [*] , R. Williams, and F. S. Foster, Sunnybrook Hospital, Toronto, Canada	3C-5 Ultrasonic Aberration Visualization Using Linear Array Tomography. K. R. Waters ^{*1} and P. H. Johnston ² , ¹ Washington University, St. Louis, MO, USA, ² NASA Langley Research Center, Hampton, VA, USA	4C-4 Borehole Dipole and Quadrupole Modes in Anisotropic Formations. B. Sinha [*] , J. Pabon, and C.-J. Hsu, Schlumberger-Doll Research, Ridgefield, CT	5C-5 Thin Layer Mechanical Constants Extraction using SAW and Stratified Green Functions - Examples of SAW Sensitivity to Silicate Layer. R. Lardat ^{*1} , T. Pastureauud ¹ , W. Steichen ¹ , V. Laude ² , and S. Ballandras ² , ¹ TEMEX Microsonics, ² LPMO/CNRS
5:45 p.m.	1C-6 ARFI Imaging of the Cardiovascular System. G. E. Trahey [*] , S. A. McLeavey, M. L. Palmeri, and K. R. Nightingale, Duke University, Durham, NC	2C-6 Ultrasound Biomicroscopy for Mouse Imaging and Doppler: Assessment of Potential for Biological Effects in the Embryo and at Soft Tissue-Bone Interfaces. A. S. Duckett ^{*1} , A. D. Reid ¹ , L. Leamen ¹ , V. Cucevic ¹ , and F. S. Foster ^{1,2} , ¹ Sunnybrook Health Sciences Centre, ² Mouse Imaging Centre	3C-6 High Resolution Laser Ultrasound for Fibre Reinforced Composites. P. Burgholzer ^{*1} , G. Paltauf ² , C. Hofer ¹ , B. Reitinger ¹ , R. Nuster ² , P. Schulz ³ , and O. Hoeglinger ¹ , ¹ Upper Austrin Research, Linz, Austria, ² Karl-Franzens-University Graz, Austria, ³ LKR Ranshofen, Austria		5C-6 Distribution of the Dynamic Strain and Stress Components within a Layered-Film of a SAW Resonator on LiTaO₃. F. Kubat ^{*1} , W. Ruile ² , T. Hesjedal ³ , and L. Reindl ¹ , ¹ Institute of Electrical Information Technology, Clausthal University of Technology, ² EPCOS AG, ³ Paul Drude Institute for Solid State Electronics

8:30 a.m. – 10:00 a.m.

Tuesday, October 7, 2003

Honolulu, Hawaii

		<i>Session 1D</i> EMBOLI DETECTION/ CONTRAST AGENTS Chair: P. Tortoli University of Florence	<i>Session 2D</i> PHASE ABERRATION Chair: M. O'Donnell University of Michigan	<i>Session 3D</i> TRANSDUCER MATERIALS I Chair: Q. Zhang Pennsylvania State University	<i>Session 4D</i> PHYSICAL ACOUSTICS II Chair: S. Schneider Marquette University	<i>Session 5D</i> SAW RF FILTERS Chair: C. Ruppel EPCOS AG
		Tapas 1	Tapas 2	Tapas 3	Honolulu	South Pacific
44	8:30 a.m.	1D-1 (Invited) Ultrasonic Detection of Cerebral Emboli. D. H. Evans*, University of Leicester	2D-1 Real-time Adaptive Imaging on 1.75D, High Frequency Arrays. S. A. McAleavey* ¹ , J. J. Dahl ¹ , and G. E. Trahey ^{1,2} , ¹ Duke University, Durham, NC, ² Duke University Medical Center, Durham, NC	3D-1 Lanthanum and Gallium Co-modified BiFeO₃-PbTiO₃ Crystalline Solutions: Lead Reduced Morphotropic Phase Boundary Piezoelectrics and Magnetoelectric Ceramics. J. R. Cheng* ^{1,3} , S. Dong ² , D. Viehland ² , and L. E. Cross ¹ , ¹ The Pennsylvania State University, ² Virginia Tech., ³ Shanghai University, P.R.China	4D-1 Experimental Study of Band Gaps and Defect Modes in a Two-Dimensional Ultrasonic Crystal. A. Khelif*, A. Choujaa, R. Laihem, M. Wilm, M. Solal, S. Ballandras, and V. Laude, LPMO, Besancon, France	5D-1 The Approach to Realize the Characteristics of SAW Resonator with the Temperature Compensation and Steepness for PCS Duplexer. R. Takayama*, H. Nakanishi, Y. Iwasaki, T. Inoue, and T. Kawasaki, Matsushita Electronic Components Co., Ltd.
	8:45 a.m.		2D-2 A Clinical Study of Adaptive Beamforming using Time-Delay Adjustments on a 1-D Array. D-L. D. Liu* ¹ , J. A. Baker ² , and P. Von Behren ¹ , ¹ Siemens Medical Solutions Ultrasound Group, Issaquah, WA, ² Duke Univ. Medical Center, Durham, NC	3D-2 Identification of Material Nonlinearities in Piezoelectric Ceramics. B. Kaltenbacher, M. Hofer, M. Kaltenbacher*, R. Simkovic, and R. Lerch, Department of Sensor Technology, University of Erlangen-Nuremberg, Germany	4D-2 Phenomenological Study and Selectivity Raising of Phononic Crystals. Y. A. Nelin*, National Technical University of Ukraine Kyiv Politechnic Institute, Kyiv, Ukraine	5D-2 1.9 GHz Range Ultra-Low-Loss and Steep Cut-Off Double Mode SAW Filter for the Rx band in the PCS Antenna Duplexer. S. Inoue* ¹ , J. Tsutsumi ¹ , Y. Iwamoto ¹ , T. Matsuda ¹ , M. Miura ¹ , Y. Satoh ¹ , M. Ueda ² , and O. Ikata ² , ¹ Fujitsu Laboratories Ltd., Akashi, Japan, ² Fujitsu Media Devices Limited, Yokohama, Japan

9:00 a.m.	1D-2 Observations of the Effects of Radiation Forces on Individual Air Bubbles with High-Speed Photography. P. Palanchon ¹ , P. Tortoli ² , A. Bouakaz ¹ , M. Versluis ³ , and N. de Jong ¹ , ¹ Erasmus Medical Center, ² University of Florence, ³ University of Twente	2D-3 Ultrasonic Shear (SH) Mode in the Human Skull. G. T. Clement*, P. J. White, and K. Hynynen, Harvard Medical School, Brigham and Women's Hospital	3D-3 Improving the Thermal Stability of 1-3 Piezoelectric Composite Transducers Manufactured Using Thermally Conductive Polymeric Fillers. A. C. S. Parr*, R. L. O'Leary, G. Hayward, and G. Smillie, Centre for Ultrasonic Engineering, Glasgow, U.K	4D-3 (Invited) Nuclear Acoustic Resonance for the Detection of Fissile Material. B. R. Tittmann ¹ , P. M. Lenaham ¹ , F. Ze ² , ¹ The Pennsylvania State University, ² Lawrence Livermore National Lab	5D-3 Investigation of Merged Rx-Differential Output for Multi-Band SAW Front-End Module. M. Hikita ¹ , N. Shibagaki ¹ , K. Yokoyama ² , S. Matsuda ² , N. Matsuura ² , and O. Hikino ² , ¹ Central Research Lab. Hitachi Ltd., Kokubunji, Tokyo, Japan, ² Hitachi Media Electronics Ltd
9:15 a.m.	1D-3 Dynamics of Microbubbles for Diagnostic Ultrasound Imaging. S. Yoshizawa*, J. S. Allen, Y. Kaneko, and Y. Matsumoto, School of Engineering, University of Tokyo	2D-4 Off-Axis Scatterer Filters for Improved Aberration Measurements. J. J. Dahl* and G. E. Trahey, Duke University, Durham, NC	3D-4 Ceramic/polymer 2-2 Composites for High Frequency Transducers by Tape Casting. S. Kwon ¹ , W. S. Hackenberger ¹ , P. W. Rehrig ¹ , S. Rhee ² , K. Snook ² , and T. R. Shrout ² , ¹ TRS Technologies, Inc., ² The Pennsylvania State University		5D-4 An m-Derived Ladder High Pass SAW Filter. K. Ibata*, K. Misu, K. Murai, K. Yamagata, and K. Yoshida, Mitsubishi Electric Corporation, Kamakura, Japan
9:30 a.m.	1D-4 Free Oscillation of Microbubbles as Observed using a New 25 Million Frames per Second Camera. C. T. Chin ¹ , M. Versluis ² , C. Lancee ¹ , and N. de Jong ¹ , ¹ Erasmus Medical Centre, Rotterdam, The Netherlands, ² University of Twente, Enschede, The Netherlands	2D-5 US Image Quality Obtainable through Mammography Compatible Compression Paddle. J. F. Krücker ¹ , R. Hoctor ² , A. Kapur ² , M. M. Goodsitt ¹ , P. L. Carson ¹ , and K. Thomenius ² , ¹ University of Michigan, Department of Radiology, Ann Arbor, MI, ² General Electric Global Research Center, Schenectady, NY	3D-5 (Invited) Modern Electrets. S. Bauer*, S. Bauer-Gogonea, M. Dansachmüller, I. Graz, H. Leonhartsberger, H. Salhofer, and R. Schwödäuer, Soft Matter Physics, Johannes Kepler University, Altenberger Str. 69, A-4040 Linz, Austria	4D-4 Non-linear Acousticmagnetic Wave Instability under Resonance Magnetoacoustic Interaction. A. S. Bugaev* and V. B. Gorsky, Moscow Institute of Physics and Technology	5D-5 An Approach to Accurate Measurements of the Electrical Characteristics of SAW RF Filters Using Neutral Test Environments. F. M. Pitschi ¹ , J. E. Kiwitt ¹ , K. Ch. Wagner ¹ , H. Bilzer ² , P. Schuh ² , and W. Menzel ² , ¹ EPCOS AG, Munich, Germany, ² Microwave Techniques, University of Ulm, Ulm, Germany
9:45 a.m.	1D-5 Monitoring the Pulse-to-Pulse Evolution of Individual Microbubbles Using Light Scattering. J. Guan and T. Matula*, Applied Physics Lab, University of Washington	2D-6 Two-dimensional Phase Aberration Correction Using an Ultrasonic 1.75D Array: Case Study on Breast Microcalcifications. A. T. Fernandez ¹ and G. E. Trahey ² , ¹ Philips Research USA, Briarcliff Manor, NY, ² Duke University, Durham, NC		4D-5 Efficient Hypersonic Beam Excitation Method. V. B. Gorsky* and A. S. Bugaev, Moscow Institute of Physics and Technology	5D-6 Application of SAW Devices to Matching Elements in RF Circuits. K.-Y. Hashimoto*, T. Omori, and M. Yamaguchi, Dept. EME, Chiba University

10:30 a.m. – 12:00 noon

Tuesday, October 7, 2003

Honolulu, Hawaii

		<i>Session 1E</i> CONTRAST AGENTS II Chair: K. Ferrara University of California-Davis	<i>Session 2E</i> ALL YOU WANTED TO KNOW ABOUT IMAGING Chair: T. Thomas Siemens Ultrasound	<i>Session 3E</i> CMUT MODELING Chair: R. Lerch University Erlangen	<i>Session 4E</i> OPTICAL INTERACTIONS Chair: D. Hecht Palo Alto Research Center	<i>Session 5E</i> SYNTHESIS OF SAW DEVICES Chair: M. Pitschi EPCOS AG
		Tapas 1	Tapas 2	Tapas 3	Honolulu	South Pacific
46	10:30 a.m.	1E-1 Pulse Inversion Doppler for Blood Flow Detection in the Macro- and Microvasculature with Ultrasound Contrast Agents. M. Bruce ^{*1} , S. Jensen ² , M. Averkiou ² , and J. Powers ² , ¹ University of Washington and ² Philips Ultrasound	2E-1 (Invited) Coded Excitation for Diagnostic Ultrasound: A System Developer's Perspective. R. Y. Chiao [*] and X. Hao, GE Medical Systems, Milwaukee, WI	3E-1 Derivation of a 1D CMUT Model from FEM Results for Linear and Non-linear Equivalent Circuit Simulation. A. Lohfink ^{*1,2} , P.-C. Eccardt ¹ , W. Benecke ² , and H. Meixner ¹ , ¹ Siemens AG, CT PS8, Germany, ² IMSAS, University of Bremen, Germany	4E-1 Generation and Detection of Ultrasonic Waves in Micrometric and Sub-Micrometric Films using Picosecond Laser Pulses, a Comparative Study with Femtosecond Laser Pulses. C. Rossignol ^{*1} , B. Audoin ¹ , J. M. Rampnoux ² , and S. Dilhaire ² , ¹ Laboratoire Mecanique Physique, CNRS, Universite Bordeaux, ² Centre de Physique Moleculaire Optique et Hertzienne, CNRS, Universite Bordeaux	5E-1 Design of Wide Band SAW Coupled Resonator Filters on Quartz. A. N. Rusakov [*] , J. D. Daiani, and R. J. Kansy, RF Monolithics Inc.
	10:45 a.m.	1E-2 Detection of Hard-shelled Ultrasound Contrast Agents Using a Signal Subtraction Method. S. H. Bloch [*] , D. N. Patel, P. A. Dayton, M. Wan, and K. W. Ferrara, Department of Biomedical Engineering, UC Davis		3E-2 Improved Equivalent Circuit and Finite Element Method Modeling of Capacitive Micromachined Ultrasonic Transducers. G. G. Yaralioglu [*] , A. S. Ergun, and B. T. Khuri-Yakub, Stanford University, Ginzton Laboratory, Stanford, CA	4E-2 Optical Interactions in ZnO-TeO₂ Bi-layer for AO Device Applications. R. Nayak ¹ , A. Nayak ^{2*} , V. Gupta ¹ , and K. Sreenivas ¹ , ¹ Department of Physics and Astrophysics, University of Delhi, Delhi - 110008, India, ² Department of Physics, Amity School of Engineering & Technology, New Delhi, India	5E-2 Use of Second Order Information in the Design of Linear Phase SAW Filters. B. Panwar [*] , Indian Institute of Technology Delhi, New-Delhi, India

11:00 a.m.	1E-3 In-vitro B-mode Contrast Imaging using Chirp Excitation with a Non-linear Decoder. J. Borsboom*, C. Ting Chin, and N. de Jong, Erasmus MC, Rotterdam, The Netherlands	2E-2 Ultrasonic Self-normalized Wavelet-based Detection and Estimation of Unknown Transient Vibrations in Colored Gaussian Noise and Strong, Low Frequency Clutter. M. Plett* ¹ and K. W. Beach ² , ¹ Seattle Pacific University, Seattle, WA, ² University of Washington, Seattle, WA	3E-3 Theory of a Double-Diaphragm MEMS Ultrasonic Transducer. D. W. Greve* and I. J. Oppenheim, Carnegie Mellon University	4E-3 (Invited) Vibrational Distribution Measurement of Piezoelectric Devices using Laser Speckle and Image Processing Technique. Y. Watanabe*, S. Goka, T. Sato, and H. Sekimoto, Tokyo Metropolitan University, Japan	5E-3 Frequency-spatial Apodization for SAW Transducers. Y. A. Nelin*, National Technical University of Ukraine Kyiv Polytechnic Institute, Kyiv, Ukraine
11:15 a.m.	1E-4 A New Imaging Strategy Utilizing Wideband Transient Response of Ultrasound Contrast Agents. D. E. Kruse* ¹ , C. K. Yeh ² , and K. W. Ferrara ¹ , ¹ University of California, Davis, CA, ² National Taiwan University, Taipei, Taiwan	2E-3 Measurements Comparing the Linearly Propagated Field Using an Effective Apodization and the Nonlinearly Generated Second Harmonic Field. K. D. Wallace* ¹ , R. J. Fedewa ¹ , M. R. Holland ¹ , G. C. Ng ² , B. S. Robinson ² , J. R. Jago ² , M. Rielly ² , and J. G. Miller ¹ , ¹ Washington University in St Louis, ² Philips Ultrasound	3E-4 Pre-Compensated Excitation Waveforms to Suppress Second Harmonic in MEMS Capacitive Transducers. S. Zhou* ¹ , P. Reynolds ² , and J. Hossack ¹ , ¹ University of Virginia, ² Weidlinger Associates Inc.		5E-4 Two-channel Cascading of Transversely Coupled Resonator Filters. G. Martin* ¹ , H. Schmidt ¹ , and B. Wall ² , ¹ Leibniz Institute for Solid State and Materials Research Dresden, Germany, ² Telefilter GmbH, Teltow, Germany
11:30 a.m.	1E-5 Triplet Pulse Sequence for Superior Microbubble/Tissue Contrast. S. Umemura* ¹ , T. Azuma ¹ , H. Kuribara ² , and H. Kanda ² , ¹ Hitachi Central Research Laboratory, ² Hitachi Medical Corporation	2E-4 Harmonic Beamforming: A New Approach to Remove the Linear Contribution in Harmonic Imaging. A. Trucco* ¹ and F. Bertora ² , ¹ Dept. of Biophysical & Electronic Engineering - Univ. of Genoa, ² ESAOTE S.p.A.	3E-5 Dynamic Analysis of CMUTs in Different Regimes of Operation. B. Bayram*, E. Haeggstrom, A. Ergun, G. Yaralioglu, and B. Khuri-Yakub, Stanford University	4E-4 Active Sensing and Control of Laser Beam Position Using Dynamic Acoustooptic Diffraction Patterns. D. L. Hecht*, S. Uma, R. Matusiak, R. P. Kowalski, and E. J. Shrader, Palo Alto Research Center	5E-5 A Fast Algorithm of Designing Minimum Phase Transducer and Its Application to SPUDT Filter Design. F. Bi* ¹ , T. Pyman ² , J. Deacon ² , and W. Gibson ² , ¹ Integrated Circuit Systems, Worcester, MA, USA, ² Integrated Circuit Systems, Dorcan, Swindon, UK
11:45 a.m.	1E-6 A New High Frequency Destruction/Reperfusion System. C. K. Yeh* ¹ , D. E. Kruse ² , M. C. Lim ³ , D. E. Redline ³ , and K. W. Ferrara ² , ¹ National Taiwan University, Taipei, Taiwan, ² University of California, Davis, CA, ³ UC Davis Medical Center, Sacramento, CA	2E-5 Advantages of Probing the Trabecular Bone with Golay Coded Ultrasound. J. Litniewski* ¹ , A. Nowicki ¹ , W. Secomski ¹ , P. A. Lewin ² , and I. Trots ¹ , ¹ Institute of Fundamental Technological Research, ² Drexel University	3E-6 Simulation of Capacitive Micromachined Ultrasonic Transducers (cMUT) for Low Frequencies and Silicon Condenser Microphones using an Analytical Model. S. Junge*, L. Tebje, A. Buhrdorf, and W. Benecke, Institute for Microsensors, -actuators and -systems, Bremen, Germany	4E-5 The Possibility of Intermodulation Suppression in Acoustooptic Signal Processors by Means of Programmable Input Signal Treatment. V. Proklov* ¹ , L. Chesnokov ¹ , V. Chesnokov ¹ , and Y. Resvov ² , ¹ IRE RAS, Moscow, ² NI RCTU, Novomoskovsk of Tula Region	5E-6 Discrete Apodization in Quasi-slanted SAW IDTs. E. V. Bausk* and R. M. Taziev, Institute of Semiconductor Physics, Novosibirsk, Russia

1:30 p.m. –3:00 p.m.

Tuesday, October 7, 2003

Honolulu, Hawaii

		<i>Session 1F</i> MOLECULAR IMAGING/ CONTRAST AGENTS Chair: N. de Jong Erasmus Medical Center	<i>Session 2F</i> DYNAMIC ELASTICITY IMAGING Chair: M. Insana University of California-Davis	<i>Session 3F</i> CMUT TECHNOLOGY AND APPLICATIONS I Chair: F. Levent Degertekin Georgia Institute of Technology	<i>Session 4F</i> ULTRASONIC MOTORS Chair: A. Lal Cornell University	<i>Session 5F</i> SAW PROPAGATION Chair: M. da Cunha University of Maine
		Tapas 1	Tapas 2	Tapas 3	Honolulu	South Pacific
48	1:30 p.m.	1F-1 (Invited) Molecular Imaging. G. Lanza* ¹ , P. Winter ¹ , M. Hughes ¹ , S. Caruthers ² , and S. Wickline ¹ , ¹ Washington University Medical School, ² Philips Medical Systems	2F-1 A Numerical Simulation Study of Three Linear Arrays Arrangements for Vibro-Acoustography. G. Silva* and M. Fatemi, Mayo Clinic and Foundation	3F-1 Real-Time in-vivo Imaging with cMUT Linear Arrays. D. M. Mills* and L. S. Smith, GE Global Research	4F-1 Influences to the Mechanical Performances of the Travelling Wave Ultrasonic Motor by Varying the Prestressing Force Between Stator and Rotor. M. Bullo* ¹ and Y. Perriard ¹ , ¹ Swiss Federal Institute of Technology - EPFL	5F-1 Properties of LLSAW on YZ-cut LiNbO₃: Modeling and Experiment. T. Makkonen* ¹ , V. P. Plessky ² , W. Steichen ³ , S. Chamaly ³ , M. Solal ³ , and M. M. Salomaa ¹ , ¹ Helsinki University of Technology, Espoo, Finland, ² GVR Trade SA, Neuchatel, Switzerland, ³ TEMEX Microsonics, Sophia Antipolis, France
	1:45 p.m.					

2:00 p.m.	<p>1F-2 Augmented and Selective Delivery of Liquid Perfluorocarbon Nanoparticles to Melanoma Cells with Noncavitational Ultrasound. K. C. Crowder*, M. S. Hughes, J. N. Marsh, M. J. Scott, R. W. Fuhrhop, G. M. Lanza, and S. A. Wickline, ¹Washington University, St. Louis, MO</p>	<p>2F-3 Measuring Tissue Elastic Properties Using Acoustic Radiation Force on Laser-Generated Bubbles. T. N. Erpelding*, R. C. Booi, K. H. Hollman, and M. O'Donnell, University of Michigan, Ann Arbor, MI</p>	<p>3F-3 Fabrication and Characterization of cMUTs for Forward Looking Intravascular Ultrasound Imaging. J. G. Knight* and F. L. Degertekin, Georgia Institute of Technology</p>	<p>4F-3 Development of an Ultrasonic Clutch. T. Koyama*¹, K. Takemura², and T. Maeno¹, ¹Keio University, Yokohama, Japan, ²Tokyo Institute of Technology, Yokohama, Japan</p>	<p>5F-3 (Invited) SAW in Anisotropic Media: Theorems, Estimations, and Computations. A.N. Darinskii¹ and M. Weinhacht*², ¹Institute of Crystallography, Russian Academy of Sciences, Moscow, Russia, ²Leibniz Institute for Solid State and Materials Research Dresden, Dresden, Germany</p>
2:15 p.m.	<p>1F-3 Optimization of Site-targeted Perfluorocarbon Nanoparticle Contrast in Whole Blood for Molecular Imaging Applications. M. S. Hughes¹, J. N. Marsh¹, C. S. Half², R. W. Fuhrhop¹, M. J. Scott¹, G. M. Lanza¹, and S. A. Wickline¹, ¹Washington University School of Medicine, St. Louis, MO, ²Philips Research, USA. Briarcliff Manor, NY</p>	<p>2F-4 Harmonic Motion Imaging-Applications in the Detection of Stiffer Masses. E. E. Konofagou*¹, M. Ottensmeyer², S. Agabian¹, and K. Hynynen¹, ¹Brigham and Women's Hospital - Harvard Medical School, Boston, MA, ²CIMIT, Cambridge, MA</p>	<p>3F-4 Robust Capacitive MEMS Ultrasonic Transducers for Liquid Immersion. D. W. Greve*¹, J. Neumann¹, I. J. Oppenheim¹, D. Ozevin², and S. Pessiki², ¹Carnegie Mellon University, ²Lehigh University</p>	<p>4F-4 Operation of Ultrasonic Motor in Ultrahigh Vacuum Condition. T. Niino*, S. Takahashi, and Y. Endo, The University of Tokyo</p>	
2:30 p.m.	<p>1F-4 Ultrasonic Enhancement of $\alpha\beta_3$-Expressing Cells with Targeted Contrast Agents. P. A. Dayton*¹, D. Pearson¹, J. Clark¹, S. Simon¹, P. Schumann², R. Zutshi², T. Matusnaga², and K. W. Ferrara¹, ¹University of California, Davis, ²ImaRx Therapeutics, Inc.</p>	<p>2F-5 Inclination Dependency in Vibroacoustography: Implication on Imaging Permanent Prostate Brachytherapy Seeds. M. Fatemi*¹, B. Davis², R. Kinnick¹, and J. F. Greenleaf¹, ¹Dept. of Physiology & Biophysics, Mayo Clinic and Foundation, ²Radiation Oncology, Mayo Clinic and Foundation</p>	<p>3F-5 Improved Modeling and Fabrication Methods for the Capacitive Micromachined Ultrasonic Lamb Wave Transducer. M. H. Badi*, G. G. Yeralioglu, A. S. Ergun, Y. Huang, and B. T. Khuri-Yakub, Stanford University, Stanford, CA</p>	<p>4F-5 Motor/Guide Contact Evaluation of Rectangular Plate Linear Ultrasonic Motor Using Power Spectrum. M. Yang*¹, K. Watterson², M. C. Levesley¹, and P. G. Walker¹, ¹School of Mechanical Engineering, University of Leeds, ²Yorkshire Heart Centre, Leeds General Infirmary</p>	<p>5F-4 Effect of Surface-Bulk Hybrid Mode on Strip Admittance in 42°YX and 48°YX Cuts of LiTaO₃ with Al Grating. N. F. Naumenko*¹, B. P. Abbott², and S. Malocha², ¹Moscow Steel and Alloys Institute, ²Sawtek Inc.</p>
2:45 p.m.	<p>1F-5 High Frequency Nonlinear B-scan and Color Flow Imaging of Microbubble Contrast Agents. D. E. Goertz*^{1,2}, E. Cherin¹, A. Needles¹, R. Karshafian¹, A. Duckett¹, P. N. Burns¹, and F. S. Foster^{1,2}, ¹Dept Medical Biophysics, University of Toronto, ²Mouse Imaging Centre, University of Toronto, ³now at Erasmus MC, Rotterdam</p>	<p>2F-6 ARFI Imaging of Thermally- and Chemically-Induced Lesions in Soft Tissue: In Vivo and Ex Vivo Results. B. Fahey*, K. Nightingale, P. Wolf, D. Stutz, and G. Trahey, Duke University, Durham, NC</p>	<p>3F-6 Interdigital Capacitive Micromachined Ultrasonic Transducers for Microfluidic Applications. J. McLean* and F. L. Degertekin, Georgia Institute of Technology, Atlanta, GA</p>	<p>4F-6 Cylinder-Sphere 3-DOF Ultrasonic Motor and Its Control. W. Huang*, C. Zhao, and F. Zhan, Nanjing University of Aeronautics & Astronautics</p>	<p>5F-5 A Two-dimensional Analysis of the Surface Acoustic Wave Velocity in Finite Anisotropic Solids. J. Wang*^{1,2} and K.-Y. Hashimoto¹, ¹Chiba University, Chiba, Japan, ²Ningbo University, Ningbo, Zhejiang, China</p>

3:00 p.m. –4:30 p.m.

Tuesday, October 7, 2003, Poster Sessions

Honolulu, Hawaii

<p><i>Session P2A</i> CONTRAST AGENTS III Chair: P. Burns Sunnybrook Health Science</p>	<p><i>Session P2B</i> TISSUE CHARACTERIZATION II Chair: J. Miller Washington University</p>	<p><i>Session P2C</i> MEDICAL IMAGE PROCESSING Chair: J. Hossack University of Virginia</p>	<p><i>Session P2D</i> BEAMFORMING II Chair: T. Thomas Siemens Medical</p>	<p><i>Session P2E</i> BLOOD FLOW Chair: P. Tortoli University of Florence</p>
<p>P2A-1 Characterisation of Novel Microbubble Contrast Agents. R. J. Eckersley*, C. A. Sennoga, R. C. Campbell, and M. J. K. Blomley, Imperial College, London, UK</p>	<p>P2B-1 Detection of Calcified Vessels in Breast Tissue by Vibro-acoustography: Implications on Diagnosis of Coronary Artery Diseases. A. Alizad*, M. Fatemi, D. H. Whaley, and J. F. Greenleaf, Mayo Clinic/Foundation</p>	<p>P2C-1 Performance Evaluation of Combined Spatial Compounding/Adaptive Imaging: Simulation, Phantom and Clinical Trials. J. J. Dahl*, D. A. Guenther, and G. E. Trahey, Duke University, Durham, NC</p>	<p>P2D-1 Sidelobe Reduction for Synthetic Aperture Focusing in High-Frequency Ultrasonic Imaging. M.-L. Li*, W.-J. Guan, and P.-C. Li, Department of Electrical Engineering, National Taiwan University</p>	<p>P2E-1 A Method for Real-Time Three-Dimensional Vector Velocity Imaging. J. A. Jensen* and S. I. Nikolov, Center for Fast Ultrasound Imaging, Orsted*DTU, Technical University of Denmark</p>
<p>P2A-2 Effect of Bubble Size Distribution on Nonlinear Scattering from Microbubbles at High Frequencies. D. E. Goertz, M. E. Frijlink, A. Bouakaz, C. T. Chin, N. de Jong, and A. F. W. van der Steen, Erasmus MC, Rotterdam</p>	<p>P2B-2 On the Relative Contributions of Absorption and Scattering to Ultrasound Attenuation in Trabecular Bone: A Simulation Study. J. J. Kaufman^{*1,2}, G. M. Luo^{3,4}, and R. S. Siffert², ¹CyberLogic, Inc., ²The Mount Sinai School of Medicine, ³New York Department of Veterans Affairs Medical Center, ⁴NYU Medical Center</p>	<p>P2C-2 Mouse Myocardium Segmentation from Ultrasound Image Using a Snake Algorithm. F. Xu, Y. Yu, S. T. Acton, and J. A. Hossack*, University of Virginia</p>	<p>P2D-2 High-Resolution and Fast 3D Ultrasonic Imaging Technique. Z. M. Benenson^{*1}, A. B. Elizarov¹, T. V. Yakovleva¹, and W. D. O'Brien², ¹Scientific Council on Cybernetics of Russian Academy of Sciences, Moscow, Russia, ²University of Illinois, Urbana, IL, USA</p>	<p>P2E-2 Experimental Investigation of Transverse Flow Estimation using Transverse Oscillation. J. Udesen^{*1,2} and J. A. Jensen¹, ¹Technical University of Denmark, Kgs. Lyngby, Denmark, ²B-K Medical A/S, Herlev, Denmark</p>
<p>P2A-3 A Study on an Evaluation Method of Shell Characteristics of Ultrasound Contrast Agent using a High-Speed Camera. N. Kudo*, K. Okada, and K. Yamamoto, Graduate School of Engineering, Hokkaido University, Sapporo, Japan</p>	<p>P2B-3 Atherosclerotic Plaque Characterization by Acoustic Impedance Analysis of Intravascular Ultrasound Data. D. Bedekar*, A. Nair, A. Tajaddini, and D. Vince, Cleveland, OH, USA</p>	<p>P2C-3 Optimum Frame Interval For Ultrasound Image Motion Estimation. J. S. Ha, W. F. Walker, and J. A. Hossack*, University of Virginia</p>	<p>P2D-3 Parallel Multi-Focusing Using Plane Wave Decomposition. T. Misaridis^{*1}, P. Munk², and J. A. Jensen³, ¹Institute of Communication and Computer Systems, National Technical University of Athens, Greece, ²SACLANT Undersea Research Centre, La Spezia, Italy, ³Center for Fast Ultrasound Imaging, Orsted-DTU, Technical University of Denmark</p>	<p>P2E-3 M-Line Processing for Real-Time Investigation of Large Artery Mechanics. T. Morganti¹, S. Ricci¹, F. Guidi¹, F. Vittone², M. Kozáková², C. Palombo², and P. Tortoli^{*1}, ¹University of Florence, ²University of Pisa, Italy</p>

<p>P2A-4 Improved Frame Rate by Reduction of Bubble Destruction using Nonlinear Coded Excitations. C. T. Chin*, J. Borsboom, and N. de Jong, Erasmus Medical Centre, Rotterdam, The Netherlands</p>	<p>P2B-4 Using Vibro-acoustography to Detect Brachytherapy Metal Seeds. F. Mitri*, P. Trompette, and J.-Y. Chapelon, National Institute of Health and Medical Research, Lyon, France</p>	<p>P2C-4 Adaptive Speckle Reduction Process Enhancing Structure and Texture of B-mode Image. A. Sasaki*¹, T. Hayashi¹, T. Azuma², K.-I. Kawabata², A. Osada², T. Mitake¹, T. Nishimura³, and S. Umemura², ¹Hitachi Medical Corporation, ²Hitachi Central Research Laboratory, ³Graduate School of Information, Production and Systems, Waseda University</p>	<p>P2D-4 Duplex Synthetic Aperture Imaging with Tissue Motion Compensation. K. L. Gammelmark* and J. A. Jensen, Technical University of Denmark, Kgs. Lyngby, Denmark</p>	<p>P2E-4 Two-Dimensional Spectrum Estimation for Flow with Multiple Velocities Using Maximum Entropy. A. Yao*¹, Y. Zheng¹, and J. Greenleaf², ¹Saint Cloud State University, St. Cloud, MN, ²Mayo Foundation, Rochester, MN</p>
<p>P2A-5 A Newtonian Interfacial Rheological model of Ultrasound contrast agents. K. Sarkar*¹, D. Chatterjee¹, W. T. Shi², and F. Forsberg², ¹Department of Mechanical Engineering, University of Delaware, ²Department of Radiology, Thomas Jefferson University</p>	<p>P2B-5 Multifrequency Ultrasonometer for Assessment of Bone Health. A. Sarvazyan*, A. Tatarinov, and V. Egorov, Artann Laboratories, Lambertville, NJ</p>	<p>P2C-5 Spatial Anisotropic Diffusion and Local Time Correlation Applied to Segmentation of Vessels in Ultrasound Image Sequences. S. Balocco, O. Basset, C. Cachard, and P. Delachartre*, CREATIS, CNRS Research Unit (UMR 5515) affiliated to INSERM, Lyon, France</p>	<p>P2D-5 Multiple Transmit Focusing using Modified Orthogonal Golay Codes for Small Scale Systems. B.-H. Kim*, H.-C. Kim, and T.-K. Song, Center for Medical Solutions Research, Sogang University, Seoul, South Korea</p>	<p>P2E-5 Ultrasonic High Frequency Blood Flow Imaging of Small Animal Tumor Models. P.-C. Li*, Y.-F. Chen, and W.-J. Guan, Department of Electrical Engineering, National Taiwan University</p>
<p>P2A-6 Micro Bubble Aggregation by Interference of Incident and the Secondary Ultrasonic Waves and its Application to Bubble Characterization. Y. Yamakoshi*, N. Masuda, and N. Chelly, Faculty of Engineering, Gunma University</p>	<p>P2B-6 Clinical Assessment of Bone Tissues Using a Statistical Model for Ultrasonic Backscattered Signals. S. H. Wang*¹, C. H. Huang¹, and N. P. Yang², ¹Department of Biomedical Engineering, Chung Yuan Christian University, Chung Li, 32023, Taiwan, ROC., ²Tao Yuan Hospital, Tao Yuan, Taiwan, ROC</p>	<p>P2C-6 Tomographic Reconstruction of Sound Velocity Distribution in the Breast Using Linear Arrays. S.-W. Huang*^{1,2} and P.-C. Li^{1,2}, ¹Department of Electrical Engineering, National Taiwan University, ²National Health Research Institutes, Taiwan</p>	<p>P2D-6 Elevation Beam Profile Control with Bias Polarity Patterns Applied to Microfabricated Ultrasonic Transducers. C. Daft, P. Wagner, S. Panda, and I. Ladabaum*, Sensant Corp</p>	<p>P2E-6 Quality Control of Off-Pump Coronary Heart Surgery using Ultrasound Color Flow Imaging with Adaptive Clutter Rejection Filters. L. Loevstakken*¹, R. Haaverstad², S. Bjaerum³, S. Samstad¹, and H. Torp¹, ¹Norwegian University of Science and Technology (NTNU), ²St. Elisabeth Cardiac Centre, ³GE Vingmed</p>

3:00 p.m. –4:30 p.m.

Tuesday, October 7, 2003, Poster Sessions

Honolulu, Hawaii

<p><i>Session P2F</i> ELASTICITY Chair: M. Insana University of California-Davis</p>	<p><i>Session P2G</i> TRANSDUCER PERFORMANCE AND APPLICATIONS Chair: R. Tancrell Airmar Technology Corporation</p>	<p><i>Session P2H</i> TRANSDUCER MODELING Chair: V. Varadan Pennsylvania State University</p>	<p><i>Session P2I</i> SAW ANALYSIS I Chair: R. Weigel University of Erlangen</p>	<p><i>Session P2J</i> SAW ANALYSIS II Chair: K. Bhattacharjee Clarisay</p>
<p>P2F-1 Hysteresis Parameter Imaging of Soft Tissue under Quasi-Static Deformation. N. Nitta^{*1}, T. Shiina¹, and E. Ueno², ¹Institute of Information Sciences and Electronics, University of Tsukuba, Tsukuba, Japan, ²Institute of Clinical Medicine, University of Tsukuba, Tsukuba, Japan</p>	<p>P2G-1 Stress Field Design in Vibroacoustography Beam Forming. S. Chen[*], M. Fatemi, and J. F. Greenleaf, Mayo Clinic, Rochester, MN</p>	<p>P2H-1 Analysis of Spurious Resonances in Single and Multi-Element Piezocomposite Ultrasonic Transducers. P. Reynolds^{*1}, G. Hayward², and J. Hyslop³, ¹Weidlinger Associates, Inc, ²CUE, University of Strathclyde, Glasgow, UK, ³Alba Ultrasound, Glasgow, UK</p>	<p>P2I-1 Accurate COM Analysis for RSPUDT. S Malocha[*], B. P. Abbott, C. Finch, E. Hamilton, and E. Halpern, Sawtek, Inc., Apopka, FL USA</p>	<p>P2J-1 Spectral Element Analysis of SAW in Layered Piezoelectric Materials. A. Chakraborty[*] and S. Gopalakrishnan, Indian Institute of Science, Bangalore, India</p>
<p>P2F-2 Ultrasonic Measurement of Micro-order Displacement of Phantom Actuated by Acoustic Radiation Force under Safety Guidelines. H. Kanai[*], K. Michishita, Y. Nishio, and H. Hasegawa, Graduate School of Engineering, Tohoku University</p>	<p>P2G-2 Time-Domain Pressure of a Spherically Curved Wedge Transducer. J. A. Ketterling[*] and F. L. Lizzi, Riverside Research Institute, New York, NY</p>	<p>P2H-2 A 3D Mixed FEA/BEM Model for the Simulation of Periodic Ultrasonic Transducers Radiating in Layered Media. M. Wilm¹, S. Ballandras¹, A. Reinhardt^{*1}, V. Laude¹, R. Lardat², R. Armati¹, W. Daniau¹, F. Lanteri³, J.-F. Gelly³, and O. Burat⁴, ¹LPMO/CNRS - IMFC, associé à l'Université de Franche-Comté, ²Temex Microsonics, ³Thales Ultrasound Probes, ⁴Framatome ANP, Centre Technique Saint-Marcel</p>	<p>P2I-2 The Electric Admittance of a Complex Periodic Electrode Cell. S. V. Biryukov^{*1,2} and M. Weihnacht¹, ¹Leibniz Institute for Solid State and Materials Research Dresden, Dresden, Germany, ²Mints Radiotechnical Institute, Moscow, Russia</p>	<p>P2J-2 Analysis of Dispersion Characteristics of Shear-Horizontal-Type Surface Acoustic Waves under Waveguide Structures. T. Yamada^{*1}, K. Satoh², R. Nakagawa², T. Ohmori², K. Hashimoto², and M. Yamaguchi², ¹Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan, ²Chiba University, 1-33 Yayoi-cho, Inage-ku, Chiba-shi, Japan</p>
<p>P2F-3 Fast Bayesian Regularization for Vibration Elastography. D. Thayer[*] and T. Oliphant, Brigham Young University, Provo, UT</p>	<p>P2G-3 Design and Evaluation of a Broadband Multi-Channel Ultrasound Driving System for Therapeutic Phased Arrays. S. Sokka^{*1,2}, J. Juste¹, and K. Hynynen¹, ¹Brigham and Women's Hospital, ²Harvard-MIT Division of Health Sciences and Technology</p>	<p>P2H-3 A Comparison of Modeled and Experimental Results for a High Frequency (35 MHz) Linear Medical Ultrasonic Imaging Array. J. Cannata[*] and K. K. Shung, USC Biomedical Engineering Department</p>	<p>P2I-3 A Novel Pseudo-spectral Analysis of the Massloading Problem in SAW- and BAW Devices with Arbitrarily-Complex Electrode Profiles and Material Constitution. K. Varis and A. R. Baghai-Wadji[*], Vienna University of Technology</p>	<p>P2J-3 Finite Element Analysis of the Substrate Thickness Effect on Traveling Leaky Surface Acoustic Waves. S. Yoon¹, J.-D. Yu¹, S. Kanna^{*2}, M. Oshio², and M. Tanaka², ¹Epson R & D Inc., San Jose, CA, USA, ²Seiko Epson Corporation, Suwa, Nagano, Japan</p>

<p>P2F-4 An Experimental Characterization of Spatial Resolution in Elastography: Analysis of the Tradeoffs between Spatial Resolution and Contrast-to-Noise Ratio. S. Srinivasan^{*1}, R. Righetti², and J. Ophir, ¹The University of Texas Medical School, ²University of Houston</p>	<p>P2G-4 Ultrasound Array Transducer Testing and Characterization. A. Gubbini[*] and T. Kling, Sound Technology Inc</p>	<p>P2H-4 Finite Element Three Dimensional Analysis of the Langevin Transducer. A. Iula^{*1}, N. Lamberti², and M. Pappalardo¹, ¹University Roma Tre, Italy, ²University of Salerno, Italy</p>	<p>P2I-4 Accurate FEM/BEM-Simulation of Surface Acoustic Wave Filters. N. Finger¹, G. Kovacs^{*1}, J. Schöberl², and U. Langer², ¹EPCOS AG, ²University Linz, Austria</p>	<p>P2J-4 Dispersion Characteristics versus Strip Thickness and Material of SAW Propagating under a Periodic Metal Grating on GaAs Substrate. V.Y. Zhang^{*1} and T. Gryba², ¹IEMN - CNRS, ²IEMN - University of Valenciennes</p>
<p>P2F-5 Performance Analysis of a Regularized Algorithm for Elasticity Imaging. C. Pellot-Barakat^{*1,2}, J. Liu¹, F. Frouin², A. Herment², and M. F. Insana¹, ¹UC, Davis, California, ²INSERM, Paris, France</p>	<p>P2G-5 Speckle Reduction of Echographic Image using Higher Order Harmonic Components. I. Akiyama^{*1}, H. Yamamoto¹, G. Ohashi², and A. Ohya³, ¹Shonan Institute of Technology, ²Shizuoka University, ³The University of Tsukuba</p>	<p>P2H-5 Comparison of Mechanical Cross Talk in Single Crystal and Ceramic Periodic Piezoelectric Composite Arrays. D. Robertson^{*1}, G. Hayward¹, A. Gachagan¹, J. Hyslop², and P. Reynolds³, ¹Centre for Ultrasonic Engineering, Glasgow, U.K, ²Alba Ultrasound Limited, Glasgow, U.K, ³Weidlinger Associates Inc, Los Altos, CA</p>	<p>P2I-5 A Comparison of Experimental and Theoretical Results for the Insertion Loss of Paired IDTs for High Frequency Harmonics. F.S. Hickernell^{*1} and V.I. Fedosov², ¹The University of Central Florida, Orlando, FL, ²Institute of Radioengineering and Electronics, Moscow, Russia</p>	<p>P2J-5 Imaginary Branches of SAW Slowness Curves. M. Masson¹, V. Laude^{*1}, and M. Solal², ¹LPMO / CNRS, Besançon, France, ²TEMEX Microsonics, Sophia Antipolis, France</p>
<p>P2F-6 An in-vivo Validation Study of Ultrasonic Strain Imaging - A Comparison of Strain Derived by Ultrasonic Strain Rate Imaging, Grey-Scale M-mode and MRI. L. Herbots, J. D'hooge[*], F. Maes, S. Dymarkowski, P. Mertens, P. Claus, B. Bijnens, J. Bogaert, F.E. Rademakers, and G. R. Sutherland, Catholic University Leuven, Leuven, Belgium</p>	<p>P2G-6 A Method for Improved Transducer Performance from 20 MHz to 100 MHz Considering the Effects of Output Impedance of a High Frequency Pulser. E. J. Gottlieb[*], W. H. Chen, P. Cao, and K. K. Shung, University of Southern California</p>			<p>P2J-6 A P-matrix Model for the Analysis of SAW Grating Waveguides Taking into Account Mode Conversions Caused by Reflections. M. Solal^{*1}, V. Laude², and S. Ballandras², ¹TEMEX MICROSONICS, ²LPMO CNRS</p>
	<p>P2G-7 A New Configuration of Transducer to System Interface. W. K. Qi^{*1}, X. F. Xi¹, J. Kuhnke², A. Waechter², G. W. McLaughlin¹, and K. Sandstrom¹, ¹ZONARE Medical Systems, ²W. L. Gore & Associates</p>			

3:00 p.m. –4:30 p.m.

Tuesday, October 7, 2003, Poster Sessions

Honolulu, Hawaii

<p align="center"><i>Session P2K</i> SAW SYSTEMS AND INTERACTIONS Chair: M. Salomaa Helsinki University of Technology</p>	<p>P2L-2 High Power Durable SAW Filter with Epitaxial Aluminum Electrodes on 38.5#rotated Y-X LiTaO₃ by Two-step Process Sequence in Titanium Intermediate Layer. O. Nakagawara*, M. Saeki, A. Teramoto, M. Hasegawa, and H. Ieki, Murata Manufacturing Co., Ltd.</p>	<p align="center"><i>Session P2M</i> ULTRASONIC MOTORS Chair: K Nakamura Tohoku University</p>	<p>P2M-8 Optimal Design on Stator of Multi-DOF Ultrasonic Motor. C. Zhao, Z. Li*, and W. Huang, Ultrasonic Motor Engineering Research Center of Jiangsu Province</p>	<p>P2N-4 Suppression of Spurious Lateral Modes in Thickness Excited FBAR Resonators. D. Rosén*, J. Bjurström, I. Katardjiev, and F. Engelmark, Solid State Electronics (Uppsala University)</p>
<p>P2K-1 Nonlinearity of Surface Acoustic Waves in the Microwave Band. S. Suchkov* and D. Suchkov, Saratov State University</p>	<p>P2L-3 Growth of AlN Piezoelectric Films on Diamond for High Frequency SAW Devices. M. Benetti, D. Cannatà, F. Di Pietrantonio, and E. Verona*, Istituto di Acustica O. M. Corbino CNR Via del Fosso del Cavalliere, 100 I-00133, Rome, Italy</p>	<p>P2M-1 The Frictional Characteristics of Single-phase Drive-type USM. Y. Nakagawa*¹, K. Takemura², and T. Maeno¹, ¹Keio University, Yokohama, Japan, ²Tokyo Institute of Technology, Yokohama, Japan</p>	<p>P2M-9 Novel Atomization Method Based on SAW Streaming. K. Chouno*, N. Shimizu, Y. Matsui, J. Kondoh, and S. Shiokawa, Faculty of Eng., Shizuoka University</p>	<p align="center"><i>Session P2O</i> OPTICAL INTERACTIONS Chair: I. C. Chang Sunnyvale, CA (retired)</p>
<p>P2K-2 Backside Observation Technique for SAW Distribution under Electrodes. S.-I. Wakana*, A. Miyamoto, and A. Ito, Fujitsu Laboratories Ltd., Atsugi, Japan</p>	<p>P2L-4 The Fabrication of Pb(Zr,Ti)O₃ Films on a Al/Al₂O₃ Structure Employing a Crack Amendment Process. B.-H. Chen*¹, C.-L. Huang², and L. Wu³, ¹Nan Jeon Institute of Technology, Tainan county, Taiwan, R.O.C, ²National Cheng Kung University, Tainan, Taiwan, R.O.C, ³f-tech Corporation, Tainan county, Taiwan, R.O.C</p>	<p>P2M-2 Effects of Friction Material with Anisotropy on Properties of Ultrasonic Motor. J. Qu*¹, W. Huang², Z. Zhang¹, and C. Zhao², ¹Department of Mechanical Engineering, Harbin Institute of Technology, ²Research Center of Ultrasonic Motors, Nanjing University of Aero. & Astro</p>	<p>P2M-10 Ultrasonic Enrichment for Improved Sensitivity in Two-Photon Excitation Detection of Biomolecules. M. Wiklund*¹, P. Hänninen², and H. M. Hertz¹, ¹Royal Institute of Technology, Stockholm, Sweden, ²Turku University, Turku, Finland</p>	<p>P2O-1 Waveguide-Type Acoustooptic Frequency Shifter Driven by Surface Acoustic Wave and Its Application to Frequency-Shifted Feedback Fiber Laser. S. Kakio¹, M. Kitamura*¹, Y. Nakagawa¹, N. Zou², T. Hara², H. Ito², T. Iizuka³, T. Kobayashi³, and M. Watanabe³, ¹University of Yamanashi, ²Tohoku University, ³Optoquest Corp.</p>
<p>P2K-3 Optical Measurement and Numerical Analysis of SAW Propagation at Dispersive Delay Line on Y-Z LiNbO₃ Substrate. T Chiba*, Meisei University</p>	<p>P2L-5 The Influence of the Thin Metallic Films Anisotropy on the Temperature Stability of SAW Devices. S. Suchkov*, Saratov State University</p>	<p>P2M-3 Effects of Ceramic Thin Film Coating on a Friction Surface for Surface Acoustic Wave Linear Motor. Y. Nakamura*¹, M. K. Kurosawa¹, K. Asai², and T. Shigematsu¹, ¹Tokyo Institute of Technology, ²Matsushita Electric Industrial Co., Ltd.</p>	<p>P2M-11 A Large Scale X-Y Positioning and Localisation System of Liquid Droplet using SAW on LiNbO₃. S. Alzuaga*, S. Ballandras, F. Bastien, W. Daniau, B. Gauthier-Manuel, J. F. Manceau, B. Cretin, P. Vairac, V. Laude, and A. Khelif, Laboratoire de Physique et Metrologie des Oscillateurs (LPMO)</p>	<p>P2O-2 Light-Scattering Studies of Acoustical Activity and Attenuation in LiNbO₃ and LiTaO₃ Crystals. F. R. Akhmedzhanov*¹ and V. V. Lemanov², ¹Navoi Samarkand State University, Samarkand, ²Ioffe Physico-Technical Institute, St.Petersburg</p>

<p>P2K-4 Passive Radio-Requestable SAW Multi-Sensor System. H. Stab^{*1}, E. Pilz², and W.-J. Fischer¹, ¹Dresden University of Technology, Dresden, Germany, ²Digades Ltd., Zittau, Germany</p>	<p>P2L-6 Low TCF and High electromechanical Coupling SAW devices based on AlN/Diamond structure. M. El Hakiki¹, O. Elmazria¹, V. Moertet^{*2}, M. B. Assouar¹, M. Nesladek³, and P. Alnot¹, ¹Universite Henri Poincare, Nancy, France, ²Academy of Sciences of Czech Republic, Prague, ³IMO - Limburgs Universitair Centrum, Diepenbeek, Belgium</p>	<p>P2M-4 Comparative Analysis and Modeling of Both Standing and Travelling Wave Ultrasonic Linear Motor. J. M. Fernandez[*] and Y. Perriard, Swiss Federal Institute of Technology - EPFL</p>	<p style="text-align: center;"><i>Session P2N</i> FILTER MODELING AND PACKAGING Chair: G. Mansfeld IRE</p>	<p>P2O-3 All-optical Acousto-optic Interaction in Tellurium Dioxide Crystal. R. J. Filkins^{*1}, G. J. Saulnier², and P. K. Das², ¹GE Global Research Laboratory, ²Rennselaer Polytechnic Institute</p>
<p>P2K-5 Switchable SAW Filter Bank with Insertion Loss Less than 3 dB. S. He[*], W. Wan, S. Li, and Y. Liang, Institute of Acoustics, The Chinese Academy of Sciences</p>	<p>P2L-7 High Temperature LGS SAW Devices with Pt and WO₃ Sensing Films. J. A. Thiele[*] and M. Pereira da Cunha, University of Maine</p>	<p>P2M-5 A Novel Type of Piezoelectric Minimotor for Linear Displacements. V. A. L. Almeida and R. C. Ibrahim[*], University of Sao Paulo, Sao Paulo SP, Brazil</p>	<p>P2N-1 A Miniature FBAR Duplexer using Flipchip on LTCC. S. Marksteiner^{*1}, R. Welzer², J. Portmann², M. Handtmann¹, H.-J. Timme¹, U. Bauernschmitt², and R. Aigner¹, ¹Infineon Technologies AG, ²EPCOS AG</p>	
<p style="text-align: center;"><i>Session P2L</i> SAW THIN FILMS AND DEVICES Chair: K.-Y. Hashimoto Chiba University</p>	<p>P2L-8 A 180nm Lift-Off Process for 5GHz Band SAW Filters Using an I-line Reduction Stepper. K. Iwata[*], Y. Koshido, T. Hagi, Y. Yoshino, T. Makino, and S. Arai, Murata manufacturing Co., Ltd.</p>	<p>P2M-6 A Self-Running Ultrasonic Linear Actuator Using a Quasi-Traveling Wave on the Bottom Surface of a Prism. C.-D. Li[*] and H. Yao, Shanghai University</p>	<p>P2N-2 A Wafer Level Encapsulated FBAR Chip Molded into a 2.0 mm x 1.6 mm Plastic Package for Use as a PCS Full Band Tx Filter. D Feld[*], Agilent Technologies, San Jose, CA</p>	
<p>P2L-1 In-Situ Frequency Trimming of SAW Resonator Using Conventional Crystal Resonator Fine Tuning Method with Gold Thin film Addition. T. Y. Wu[*], C. L. Lo, C. W. Lin, S. M. Wang, Y. J. Wang, C. L. Wang, and C. S. Lam, TXC Corporation, Taiwan</p>		<p>P2M-7 Wavelet Transform Applied to Testing and Analysis on Starting-up and Stopping Responses of Ultrasonic Motor. S. Shen[*], W. Huang, and C. Zhao, Research Center of Ultrasonic Motor</p>	<p>P2N-3 Analytical 2D Model of Solidly-Mounted BAW Devices. R. F. Millsom^{*1}, H. P. Loebf², C. Metzmacher², A. Tuinhout³, P. Lok³, and F. van Straten³, ¹Philips Research Laboratories, Redhill, U.K., ²Philips Research Laboratories, Aachen, Germany, ³Philips Discrete Semiconductors, Nijmegen, The Netherlands</p>	

4:30 p.m. – 6:00 p.m.

Tuesday, October 7, 2003

Honolulu, Hawaii

5G

		<i>Session 1G</i> CONTRAST AGENTS IV Chair: H. Routh Philips Research	<i>Session 2G</i> STATIC ELASTICITY IMAGING Chair: S. Emelianov University of Texas at Austin	<i>Session 3G</i> TRANSDUCERS AND ARRAYS Chair: K. Shung University of Southern California	<i>Session 4G</i> INDUSTRIAL MEASUREMENTS AND APPLICATIONS Chair: J. Tsujino Kanagawa University	<i>Session 5G</i> SAW SIMULATION Chair: V. Plessky GVR Trade SA
		Tapas 1	Tapas 2	Tapas 3	Honolulu	South Pacific
4:30 p.m.	1G-1 (Invited) Ultrasound-induced Bioeffects: Microbubbles and Pathophysiologic Responses to Injury. J. F. Zachary* and W. D. O'Brien, Jr., University of Illinois, Urbana, IL USA	2G-1 Micromechanics of Bone: Comparative Measurement with Scanning Acoustic Microscopy and Nanoindentation. J. Brandt* ¹ , K. Raum ¹ , A. Klemenz ¹ , and S. Seidler ² , ¹ Martin-Luther-University, ² Technical University Vienna	3G-1 Real Time Cylindrical Curvilinear 3-D Ultrasound. E. C. Pua* and S. W. Smith, Duke University, Durham, NC, USA	4G-1 Dual-Mode Longitudinal-Shear Transducer Based on Stacked Piezoelectric Elements. P.H. Johnston*, NASA Langley Research Center	5G-1 A Generalized P-matrix Model for SAW Filters. G. Kovacs*, EPCOS AG	
4:45 p.m.		2G-2 Palpation Tomography - A New Technique for Modulus Estimation in Elastography. T Harrigan ¹ and EE Konofagou* ² , ¹ Exponent Failure Analysis Associates, Natick, MA, ² Brigham and Women's Hospital - Harvard Medical School, Boston, MA	3G-2 Advances in 2D Array Catheter Transducers for Real-Time Three-Dimensional Intracardiac Echocardiography. W. Lee* ¹ , S. F. Idriss ² , P.D. Wolf ¹ , and S. W. Smith ¹ , ¹ Duke University, Durham, NC, USA, ² Duke University Medical Center, Durham, NC, USA	4G-2 Ultrasonic Determination of Physical Properties of the Fibre Material in Dilute Pulp Fibre Suspensions. T. Lofqvist* and Y. Colombi, EISLAB, Dept. of Comp. Sci. and Elec. Eng., Lulea University of Technology, SE-971 87 Lulea, Sweden	5G-2 Application of B-spline and Dual B-spline Wavelets to the Analysis of Static- and Dynamic Charge Distributions in SAW- and BAW Devices. R. Kolm* and A. R. Baghai-Wadji, Vienna University of Technology	

5:00 p.m.	<p>1G-2 Observation of Transient Perfusion Defects in a Mouse Heart using Contrast Ultrasound. J. A. Hossack*, J. C. Christensen, B. A. French, Z. Yang, J. Sklenar, J. R. Lindner, and S. Kaul, University of Virginia</p>	<p>2G-3 Ultrasonic Determination of Laser Manipulated Changes in the Elastic Property of the Intraocular Lens. K. W. Hollman*, W. Lummis², D. Herbert¹, H.-H. Liu³, T. Juhasz³, and M. O'Donnell¹, ¹Univ. of MI, Ann Arbor, MI, ²Intralase Corporation, Irvine, CA, ³Univ. of MI, Ann Arbor, MI</p>	<p>3G-3 A Cancellation Based Approach for Reducing Acoustic Cross-talk in Ultrasound Arrays. S. Zhou* and J. Hossack, University of Virginia</p>	<p>4G-3 Multi Sensor Suite Comprising Active and Passive Ultrasonic Transducers for Monitoring Solids Flow and Silo Integrity. U. Datta², S. Ose², M. Halstensen¹, and S. Mylvaganam*¹, ¹Telemark University College, ²Tel-Tek</p>	<p>5G-3 Full Wave Simulation of SAW Filter Package and SAW Pattern inside Package. S.-H. Lin*¹, K.-H. Lin¹, S.-C. Chiu², and C.-Y. Chen², ¹National Sun Yat-sen University, Kaohsiunh, Taiwan, ²TAI-SAW Technology, Taoyuanf, Taiwan</p>
5:15 p.m.	<p>1G-3 Estimation of Vascular Density and Blood Velocity in Tumors. A. Sadlowski*¹, R. Pollard², P. Dayton¹, E. Wisner², and K. Ferrara¹, ¹Department of Biomedical Engineering, University of California, Davis, ²Department of Veterinary Radiology, University of California, Davis</p>	<p>2G-4 Study of Elastic Non Linearity of Soft Solids with Transient Elastography. X. Jacob, J.-L. Gennisson, S. Catheline*, M. Tanter, C. Barrière, D. Royer, and M. Fink, Laboratoire Ondes et Acoustique</p>	<p>3G-4 Structural Optimization of Ultrasonic Transducer Structures for Improved Spectral, Temporal and Spatial Characteristics. D. J. Powell*¹, J. Mould¹, L. Carcione¹, P. Reynolds¹, and C. S. Desilets², ¹Weidlinger Associates Inc, ²Lipsonix</p>	<p>4G-4 High Temperature Ultrasonic Transducers for Monitoring of Micro-molding. M. Kobayashi*¹, C.-K. Jen², C. Corbeil², Y. Ono², H. Hebert², and A. Derdour², ¹McGill University, ²IMI, National Research Council of Canada</p>	<p>5G-4 Approximate Analysis of SAW Longitudinally-Coupled Resonator (LCR) Filters. D. P. Morgan*, Impulse Consulting</p>
5:30 p.m.	<p>1G-4 An in vitro Study of a Myocardial Perfusion Contrast Agent. V. Sboros*¹, S. D. Pye¹, C. M. Moran¹, T. Brock-Fisher², M. Poland³, C. McDonald², J. Gomatam², and W. N. McDicken¹, ¹University of Edinburgh, Edinburgh, UK, ²Glasgow Caledonian University, Glasgow, UK, ³Philips Medical Systems, Andover, MA</p>	<p>2G-5 SNR and Image Quality of Different Real Time Strain Imaging Approaches: Real Time Strain Imaging versus Real Time Vibrography. A. Lorenz*¹, A. Pesavento¹, H. Ermert², B. Brendel², M. Scholz³, A. Harders³, V. Noack³, and S. Siebers², ¹LP-IT Innovative Technologies GmbH, ²Ruhr University Bochum, ³University Hospital</p>	<p>3G-5 Dual Frequency Array Transducer for Ultrasound-Enhanced Transcranial Thrombolysis. T. Azuma*¹, S. Umemura¹, T. Kobayashi², M. Izumi², J. Kubota², A. Sasaki², and H. Furuhashi³, ¹Hitachi Central Research Laboratory, ²Hitachi Medical Corporation, ³ME Lab., Jikei University School of Medicine</p>	<p>4G-5 High Frequency Complex Vibration Systems Using a Complex Vibration Converter with Diagonal Slits. J. Tsujino*, S. Ihara, Y. Harada, K. Kasahara, and N. Sakamaki, Kanagawa University</p>	<p>5G-5 Evaluation of Dispersion in COM-Parameters. B. Sveshnikov*¹, A. Shitvov¹, and K. Bhattacharjee², ¹Nizhny Novgorod State University, Russia, ²Clarisay Inc., Dallas, Texas, USA</p>
5:45 p.m.	<p>1G-5 Influence of Tissue Elasticity on Gas Bubble Dynamics. S. Y. Emelianov*, M. F. Hamilton, Y. A. Ilinskii, G. D. Meegan, and E. A. Zabolotskaya, The University of Texas at Austin</p>	<p>2G-6 Clinical Assessment of Real-time, Freehand Elasticity Imaging System Based on the Combined Autocorrelation Method. T. Shiina*¹, M. Yamakawa¹, N. Nitta¹, E. Ueno¹, T. Matsumura², S. Tamano², and T. Mitake², ¹University of Tsukuba, ²Research & Development Center, Hitachi Medical Corporation</p>	<p>3G-6 Mid- to High-Power Ultrasound Imaging Arrays - From ARFI to HIFU. M. J. Zipparo*, Tetrad Corporation, Englewood, CO</p>	<p>4G-6 Configuration of a 30-mm-Diameter 94 kHz Ultrasonic Longitudinal Vibration System for Plastic Welding. J. Tsujino*, M. Hogoh, M. Yoshikuni, H. Hashii, and T. Ueoka, Kanagawa University</p>	<p>5G-6 A Powerful Novel Method for the Simulation of Waveguiding in SAW Devices. M. Mayer*, G. Kovacs, A. Bergmann, and K. Wagner, EPCOS AG</p>

8:30 a.m. – 10:00 a.m.

Wednesday, October 8, 2003

Honolulu, Hawaii

		<i>Session 1H</i> CAVITATION AND HIFU Chair: S. Umemura Hitachi	<i>Session 2H</i> HIGH FREQUENCY IMAGING Chair: S. Foster University of Toronto	<i>Session 3H</i> SINGLE CRYSTAL TRANSDUCERS AND MATERIALS Chair: C. Oakley Tetrad Corporation	<i>Session 4H</i> ACOUSTICAL IMAGING Chair: R. Gr. Maev University of Windsor	<i>Session 5H</i> SAW SYSTEM APPLICATIONS Chair: B. R. Potter Vectron International
		Tapas 1	Tapas 2	Tapas 3	Honolulu	South Pacific
58	8:30 a.m.	1H-1 Optimization, Mechanisms, Monitoring and Control of Cavitation-enhanced Heating In Vivo. S. Sokka ^{*1,2} , N. McDannold ¹ , and K. Hynynen ¹ , ¹ Brigham and Womens Hospital, ² Harvard-MIT Division of Health Sciences and Technology	2H-1 Development of a High Frequency Ultrasound Skin Imaging System: Optimization Utilizing Time Domain Reflectometry and Network Analysis. M. Vogt ^{*1} , B. Paul ² , S. Scharenberg ² , R. Scharenberg ² , and H. Ermert ¹ , ¹ Dept. of Electrical Engineering, Ruhr-University, Bochum, Germany, ² taberna pro medicum GmbH, Lueneburg, Germany	3H-1 Status of Piezoelectric Single Crystal Growth for Medical Transducer Applications. P. W. Rehrig ^{*1} , W. S. Hackenberger ¹ , X. Jiang ¹ , T. R. Shrout ² , S. Zhang ² , and R. Speyer ³ , ¹ TRS Technologies, Inc., State College, PA, ² Materials Research Institute, The Pennsylvania State University, University Park, PA, ³ Georgia Institute of Technology, School of Materials Science & Engineering, Atlanta, GA	4H-1 New Approaches to Defect Characterisation with High Resolution Non-Contacting Laser Ultrasound. S. Sharples, M. Somekh [*] , and M. Clark, University of Nottingham	5H-1 Design of Miniaturized RF SAW Duplexer Package. H. Dong ^{*1} , T. X. Wu ¹ , C. A. Finch ² , B. P. Abbott ² , and K. S. Cheema ² , ¹ University of Central Florida, Orlando, FL, ² SAWTEK Inc., Apopka, FL
	8:45 a.m.	1H-2 The Role of Cavitation in Tissue Injury and Stone Communion in Shock Wave Lithotripsy. M. R. Bailey ^{*1} , R. O. Cleveland ² , T. Colonius ³ , L. A. Crum ¹ , A. P. Evan ⁴ , J. E. Lingeman ⁵ , J. A. McAteer ⁴ , O. A. Sapozhnikov ¹ , and J. C. Williams ⁴ , ¹ Applied Physics Laboratory, ² Boston University, ³ California Institute of Technology, ⁴ Indiana University School of Medicine, ⁵ Methodist Hospital Inst. for Kindey Stone Disease	2H-2 Beyond 40 MHz: Extended Continuous Frequency Response Measurement of Ultrasonic Hydrophone Probes using a Time Domain Approach. E. G. Radulescu ^{*1} , P. A. Lewin ¹ , A. Nowicki ² , and J. Wojcik ² , ¹ The School of Biomedical Engineering, Science and Health Systems, Drexel University, Philadelphia PA, ² IPPT of Polish Academy of Sciences, Warsaw, Poland	3H-2 Piezoelectric Materials Pb(In_{1/2}Nb_{1/2})O₃-Pb(Mg_{1/3}Nb_{2/3})O₃-PbTiO₃ with High Curie Temperatures and Large Piezoelectric Constants. Y. Hosono ^{*1} , Y. Yamashita ¹ , and N. Ichinose ² , ¹ Corporate R&D Center, Toshiba Corporation, Kawasaki, Japan, ² School of Science and Engineering, Waseda University, Tokyo, Japan	4H-2 Ultrasonic Imaging of Metal Sheet Hydroforming - System Overview and Latest Experimental Results. O. Keitmann-Curdes ^{*1} , C. Hansen ¹ , P. Knoll ² , H. Meier ² , and H. Ermert ¹ , ¹ Institute of High Frequency Engineering, Ruhr-University Bochum, Bochum, Germany, ² Department of Mechanical Engineering, Ruhr-University Bochum, Bochum, Germany	5H-2 Phase Accuracy for SAW RFID Tag Devices. C. S. Hartmann [*] , P. Brown, and J. Bellamy, RF SAW, Inc., Richardson, TX, USA

9:00 a.m.	1H-3 Separating Nonlinear Propagation and Cavitation Effects in HIFU. J. A. Reed ^{*1} , M. R. Bailey ¹ , M. Nakazawa ¹ , and V. A. Khokhlova ² , ¹ Applied Physics Laboratory, Seattle, WA, USA, ² Moscow State University, Moscow, Russia	2H-3 A Material Impulse Response for Describing Broadband Pulses in Lossy Media. T. L. Szabo [*] , Boston University, Boston, MA	3H-3 Recent Development in High Transition Temperature (T_c) Perovskite Piezoelectrics. T. Shrout ^{*1} , R. Eitel ¹ , S. Zhang ¹ , C. Randall ¹ , E. Alberta ² , and P. Rehrig ² , ¹ The Pennsylvania State University, University Park, PA, USA, ² TRS Technologies, Inc., State College, PA, USA	4H-3 Reproducibility Improvement of the LFB Ultrasonic Material Characterization System. Y. Ohashi [*] and J. Kushibiki, Tohoku University, Sendai, Japan	5H-3 High Attenuation SAW IF Filter for Digital Terrestrial TV. H. Wachi [*] , T. Takezaki, S. Mitobe, M. Koshino, and Y. Ebata, Fujitsu Media Devices Limited
9:15 a.m.	1H-4 Controlled Ultrasound Tissue Erosion. Z. Xu ^{*1} , A. Ludomirsky ² , L. Eun ² , T. L. Hall ¹ , B. C. Tran ¹ , J. B. Fowlkes ¹ , and C. A. Cain ¹ , ¹ Department of Biomedical Engineering, University of Michigan, ² Division of Pediatric Cardiology, University of Michigan	2H-4 An Investigation of Backscatter Power Spectra from Cells, Cell Pellets and Microspheres: Preliminary Evidence of Resonant Behavior from Eukaryotic Cells. M. C. Kolios ^{*1,2} , L. Taggart ^{1,2} , R. Baddour ^{2,4} , F. S. Foster ^{3,2} , J. W. Hunt ^{2,4} , G. J. Czarnota ^{2,4} , and M. D. Sherar ^{2,4} , ² University of Toronto, ³ Sunnybrook and Women's College Health Sciences Centre, ⁴ University Health Network, ¹ Ryerson University	3H-4 Single-Crystal Lead-Zinc-Niobate-Titanate Based Single Element Transducers at Operating Frequencies of 20 - 50 MHz. S. Rhee [*] , S. Zhang, K. A. Snook, and T. R. Shrout, Pennsylvania State University	4H-4 Ultrasonic Leaky-Lamb Wave Imaging Through a Highly Contrasting Layer. S. Zeroug ^{*1} and B. Froelich ² , ¹ Schlumberger-Doll Research, Ridgefield, CT, USA, ² Schlumberger-Riboud Product Center, Clamart, Paris, France	5H-4 Unidirectional SAW Transducer for GHz Frequencies on 128° LiNbO₃. S. Lehtonen ^{*1} , V. P. Plessky ^{1,2} , C. S. Hartmann ³ , and M. M. Salomaa ¹ , ¹ Helsinki University of Technology, Espoo, Finland, ² GVR Trade SA, Bevaix, Switzerland, ³ RF SAW, Inc., Dallas, TX, USA
9:30 a.m.	1H-5 Noninvasive Ultrasonic Transdermal Insulin Delivery in Rabbits Using the Lightweight Cymbal Array. S. Lee [*] , R. E. Newnham, and N. B. Smith, The Pennsylvania State University, University Park, PA	2H-5 Structural and Doppler Imaging of Xenopus Laevis Embryos in vivo: a Comparison of Ultrasound Biomicroscopy and Optical Coherence Tomography. A. Needles ^{*1} , V. X. D. Yang ² , B. C. Wilson ² , I. A. Vitkin ² , and F. S. Foster ¹ , ¹ Sunnybrook and Womens College Health Sciences Center, Toronto, Canada, ² Ontario Cancer Institute, Toronto, Canada	3H-5 Broadband Single Crystal Transducer for Contrast Agent Harmonic Imaging. W. S. Hackenberger ^{*1} , X. Jiang ¹ , X. Geng ² , A. Winder ³ , and F. Forsberg ⁴ , ¹ TRS Technologies, Inc., ² Blatek, Inc., ³ J&W Medical, LLC, ⁴ Thomas Jefferson University	4H-5 High Frequency Acoustic Dispersion of Surface Waves using Time-resolved Broadband Microscopy. K. Raum [*] and J. Brandt, Martin Luther University of Halle, Dept. of Orthopedics, Q-BAM Group	5H-5 A Compact and High Optical Transmission SAW Touch Screen with ZnO Thin-Film Piezoelectric Transducers. T. Katsuki [*] , S. Sano, Y. Takahashi, and F. Nakazawa, Fujitsu Laboratories Ltd.
9:45 a.m.	1H-6 Effect of Periodic Shifting of Relative Phase on Cavitation Effects with Second-Harmonic Superimposition in vitro and in vivo. K. Kawabata, N. Sugita, K. Sasaki, and S. Umemura, Central Research Laboratory, Hitachi, Ltd.	2H-6 Measurements of Elastic Properties of Cells Using High Frequency Time-Resolved Acoustic Microscopy. E. C. Weiss ¹ , R. M. Lemor ^{*1} , G. Pilarczyk ¹ , and P. V. Zinin ² , ¹ Fraunhofer-Institut for Biomedical Engineering, St. Ingbert, Germany, ² SOEST, University of Hawaii, Honolulu, HI, USA	3H-6 A 128 channel 7.5 MHz Linear Array Ultrasonic Probe Using PMN-PT Single Crystal. S. M. Rhim ^{*1} , H. Kim ² , H. Jung ¹ , S. Kim ¹ , and S.-G. Lee ³ , ¹ Humanscan Co., Ltd., ² Medison Co., Ltd., ³ Ibule Photonics Co., Ltd.	4H-6 Imaging of Fluid Flow by Tomographic Reconstruction Using Enhanced Multipath Ultrasonic Measurements. M. N. Rychagov [*] , S. A. Tereshchenko, V. M. Podgaetsky, and S. V. Selishchev, Moscow Institute of Electronic Technology (Technical University) Moscow 124498 Zelenograd Russia	5H-6 Design Consideration on Ultra-Wideband-SAW Devices Operating at GHz Frequency Range. H. Yoshida [*] , C. Kaneshiro, K. Koh, and K. Hohkawa, Kanagawa Institute of Technology

10:30 a.m. – 12:00 noon

Wednesday, October 8, 2003

Honolulu, Hawaii

		<i>Session 11</i> THERAPY Chair: G. ter Haar Institute for Cancer Research, Royal Marsden Hospital	<i>Session 21</i> BLOOD FLOW Chair: D. Evans University of Leicester	<i>Session 31</i> HIGH FREQUENCY IMAGING Chair: G. Lockwood Queens University	<i>Session 41</i> MATERIALS CHARACTERIZATION Chair: D. Yuhás Industrial Measurement Systems	<i>Session 51</i> THIN FILMS AND DEVICES Chair: J. Kosinski U.S. Army RDE Command
		Tapas 1	Tapas 2	Tapas 3	Honolulu	South Pacific
69	10:30 a.m.	11-1 Feasibility of Haemostasis in Prostate using a Flat Trans-urethral Transducer. C. Lafon*, S. Chesnais, Y. Theillère, J. Y. Chapelon, and D. Cathignol, Inserm U556, Lyon, France	21-1 Adaptive Filtering of Physiological and ARFI-Induced Tissue and Blood Motion, <i>In Vivo</i>. C. M. Gallippi*, K. R. Nightingale, and G. E. Trahey, Duke University	31-1 Development of High Frequency Annular Arrays for Medical Imaging. K. A. Snook* ¹ , T. R. Shrout ¹ , and K. K. Shung ² , ¹ Penn State University, ² University of Southern California	41-1 Detection and Localization of the Subsurface Defects in DLC Films by Acoustic Microscopy. P. V. Zinin ¹ , D. Fei ² , D. A. Rebinsky ² , R. M. Lemor ^{3,4} , E. C. Weiss ³ , S. Berezina ¹ , C. Arnold ⁴ , W. Arnold ⁴ , and K. Kraemer ⁵ , ¹ SOEST, University of Hawaii, ² Caterpillar Inc., ³ Fraunhofer-Institute for Biomedical Technology, ⁴ Fraunhofer-Institute for Non-Destructive Testing, ⁵ Kraemer Scientific Instruments	51-1 SAW Analysis of the Mg_xZn_{1-x}O/SiO₂/Si System. H. Wu*, N. W. Emanetoglu, P. Wu, Y. Chen, and Y. Lu, Rutgers, the State University of New Jersey, New Brunswick, NJ
	10:45 a.m.	11-2 High Intensity Focused Ultrasound for the Treatment of Renal Parenchymal Tumours - Preliminary Oxford Experience. J. Kennedy ¹ , F. Wu ² , G. ter Haar* ³ , and D. Cranston ¹ , ¹ Churchill Hospital, Oxford, UK, ² Chongqing University of Medical Sciences, Chongqing, China, ³ Institute of Cancer Research, Sutton, UK	21-2 In vivo Observation of Blood Echogenicity Variation during a Cardiac Cycle on Human Carotid Arteries. D.-G. Paeng* ¹ , B. S. Kim ² , M. J. Choi ¹ , and K. K. Shung ² , ¹ Cheju National University, ² University of Southern California	31-2 Fabrication and Performance of 40-60 MHz Annular Arrays. J. A. Brown*, C. E. Morton, and G. R. Lockwood, Queen's University, Kingston, Ontario, Canada	41-2 Opto-Acoustic Inspection Techniques of Layered Low Dielectric Constant Films for Microelectronic Interconnect. C. M. Flannery* ^{1,2} , S. Kim ¹ , and D. C. Hurley ¹ , ¹ National Institute of Standards and Technology, Boulder, CO, ² Engineering, Colorado School of Mines, Golden, CO	51-2 Improvements in the Temperature Stability of a IDT/ZnO/fused Quartz Thin Film SAW Device with ZnO Over Layer. M. Tomar, V. Gupta, and K. Sreenivas, Department of Physics and Astrophysics, University of Delhi, Delhi-110007, India

11:00 a.m.	11-3 Ultrasonically Induced Necrosis through the Rib Cage Based on Adaptive Focusing: ex vivo Experiments. M. Pernot, J.-F. Aubry*, M. Tanter, and M. Fink, Laboratoire Ondes et Acoustique, Paris, France	21-3 Doppler Hemodynamic Studies of the Developing Mouse Heart. Y. Q. Zhou, S. L. Adamson, B. Bruneau, L. Davidson, and F. S. Foster*, ¹ Mouse Imaging Centre, Hospital for Sick Children, ² Sunnybrook & Women's College Health Sciences Centre, ³ Samuel Lunenfeld Research Institute, Mount Sinai Hospital, ⁴ University of Toronto	31-3 Precision Mechanically Scanned HF Ultrasound Arrays. R. L. Tutwiler* ¹ , J. P. Stitt ¹ , T. A. Ritter ¹ , K. K. Shung ² , W. S. Hackenberger ³ , X. N. Jiang ³ , and P. W. Rehrig ³ , ¹ Penn State University, State College, PA/USA, ² University of Southern California, Los Angeles, CA/USA, ³ TRS Ceramics, State College, PA/USA	41-3 Evaluation of Pyrex Glasses by the Line-Focus-Beam Ultrasonic Material Characterization System. J. Kushibiki and M. Arakawa*, Tohoku University, Sendai, Japan	51-3 AlN Epitaxial Film on 6H-SiC(0001) Using MOCVD for GHz-band SAW Devices. K. Uehara* ¹ , C. M. Yang ¹ , T. Furusho ² , S. Nishino ² , and K. Tsubouchi ¹ , ¹ Research Institute of Electrical Communication, Tohoku university, ² Kyoto Institute of Technology
11:15 a.m.	11-4 A Novel Ultrasound-based Technique for Imaging Changes in Local Tissue Acoustic Properties during HIFU-induced Lesion Formation. P. Kaczkowski* and A. Anand, University of Washington, Seattle, WA, USA	21-4 Quantitative Blood Flow Estimation Error Due to the In-Plane Component of the Flow with Intravascular Ultrasound. F. J. de Ana* and M. O'Donnell, University of Michigan, Ann Arbor, MI USA	31-4 Two Dimensional Arrays for Real Time 3D Intravascular Ultrasound. E. D. Light* and S. W. Smith, Duke University, Durham, NC, USA	41-4 Frequency and Temperature Dependence of Acoustic Properties of Polymers Used in Pulse-Echo Systems. J. E. Carlson* ¹ , J. van Deventer ¹ , A. Scolan ¹ , and C. Carlander ² , ¹ EISLAB, Lulea University of Technology, SE-971 87 Lulea, Sweden, ² D-Flow AB, Aurorum 2, SE-977 75, Lulea, Sweden	51-4 Preparation of AlN thin film on Free Standing Diamond film by Ion Beam Sputter. L. Ping-Yin*, H. Chun-Hao, F. Chin-Hon, W. Chih-Hung, C. Chih-Yung, and T. Hung-Yin, Industrial Technology Research Institute
11:30 a.m.	11-5 Effect of Temperature Inhomogeneity on the Phase and Amplitude of Focused Ultrasound Pulse. V. A. Khokhlova*, V. G. Andreev, A. V. Vedernikov, A. V. Morozov, and M. V. Averyanov, Moscow State University, Moscow, Russia	21-5 Blind Source Separation-Based Two-Dimensional Blood Velocity Estimation: Simulation and Clinical Results. C. M. Gallippi* and G. E. Trahey, Duke University	31-5 (Invited) Real-Time and Functional Optical Coherence Tomography. J. A. Izatt*, Department of Biomedical Engineering, Duke University, Durham, NC	41-5 Non-Destructive Characterization of Hydrogen Concentration in Zircalloy by a Low-Frequency Acoustic Microscope. C.-H. Yang* and M.-F. Huang, Chang Gung University	51-5 Surface Acoustic Waves in ZnO/Al_xGa_{1-x}N/ C-sapphire Structures. Y. Chen* ¹ , N. W. Emanetoglu ¹ , Y. Chen ¹ , Y. Lu ¹ , M. Prohpristic ² , V. Merai ² , A. Parekh ² , and E. Armour ² , ¹ Rutgers University, New Brunswick, NJ, ² EMCORE Corporation, Somerset, NJ
11:45 a.m.	11-6 Cavitation Induced Cell Permeabilization. B. Wolfrum* ¹ , C. D. Ohi ² , R. Mettin ¹ , T. Kurz ¹ , and W. Lauterborn ¹ , ¹ Drittes Physikalisches Institut, Universitaet Goettingen, ² Department of Applied Physics, TU Twente	21-6 Experimental Validation of a Power Doppler Performance Model and Application to Tumor Perfusion. R. J. Zemp*, C. K. Abbey, and M. F. Insana, Dept. Biomedical Engineering, University of California, Davis		41-6 An Ultrasonic Evaluation for Degradation of Insulating Oil Using Fuzzy Inference. K. Nagamune* ¹ , K. Taniguchi ² , S. Kobashi ¹ , K. Kondo ¹ , and Y. Hata ¹ , ¹ Graduate School of Engineering, Himeji Institute of Technology, ² Kinden Corporation	51-6 Temperature Characteristic of AlN Thin Film on Y-64° LiNbO₃ Composite Substrate. C. L. Huang ¹ , F. C. Chang* ¹ , L. Wu ^{1,2} , and M. S. Lee ³ , ¹ Department of Electrical Engineering, National Cheng Kung University, ² Fetch Corporation, ³ Department of Electronic Engineering, National Kaohsiung University of Applied Sciences

1:30 p.m. – 3:00 p.m.

Wednesday, October 8, 2003

Honolulu, Hawaii

62

		<i>Session 1J</i> THERAPEUTICS Chair: N. Smith Penn State University	<i>Session 2J</i> DYNAMICS OF TISSUE Chair: K. Nightingale Duke University	<i>Session 3J</i> 2D ARRAYS Chair: S. Smith GE REsearch	<i>Session 4J</i> NONLINEAR IMAGING IN NDE Chair: R. Gr. Maev University of Windsor	
		Tapas 1	Tapas 2	Tapas 3	Honolulu	South Pacific
1:30 p.m.		1J-1 A 500 Element Ultrasound Phased Array System for Noninvasive Focal Surgery of the Brain- A Preliminary Rabbit Study with Ex Vivo Human Skulls. K. Hynynen ^{*1} , G. Clement ¹ , N. McDannold ¹ , N. Vykhodtseva ¹ , R. King ¹ , J. White ¹ , S. Vitek ² , and F. Jolesz ¹ , ¹ Harvard Medical School, Brigham and Women's Hospital, ² InSightec-TxSonics	2J-1 Shear Wave Anisotropy Imaging. S. Hsu [*] , M. Palmeri, K. Nightingale, S. McAleavey, J. Dahl, and G. Trahey, Duke University	3J-1 (Invited) Fully Sampled Matrix Transducer for Real Time 3D Ultrasonic Imaging. B. Savord [*] and R. Solomon, Philips Ultrasound	4J-1 Evaluation of Nanoscale Cracks by Low-pass Filter Effect in Nonlinear Ultrasound. K. Yamanaka ^{*1} , T. Mihara ¹ , and T. Tsuji ^{2,1} , ¹ Tohoku University, ² National Institute of Advanced Industrial Science and Technology	
1:45 p.m.		1J-2 Focused Ultrasound Transduction of Molecular Death Signals. A. Abdollahi ¹ , S. Domhan ¹ , P. Gong ¹ , J. Jenne ¹ , M. Hallaj ² , H. Martin ² , J. Debus ¹ , K. Hynynen ² , and P. E. Huber ^{*1} , ¹ DKFZ, German Cancer Research Center, Heidelberg, ² Radiology, Brigham and Women's Hospital, Harvard Medical School, Boston	2J-2 Study of Viscous and Elastic Properties of Soft Tissues using Supersonic Shear Imaging. J. Bercoff [*] , M. Tanter, M Muller, and M. Fink, Laboratoire Ondes et Acoustique, Paris, France		4J-2 Fast Adaptive Multi-Frequency All-Optical Scanning Acoustic Microscope. S. D. Sharples [*] , M. Clark, N. A. Mohd Arif, and M. G. Somekh, University of Nottingham	

2:00 p.m.	1J-3 Ultrasound Radiation Force on Acoustically-Active Lipospheres for Drug Delivery. M. Shortencarier ^{*1} , P. Dayton ¹ , D. Pearson ¹ , P. Schumann ² , R. Zutshi ² , T. Matsunaga ² , and K. Ferrara ¹ , ¹ University of California at Davis, ² ImaRx Therapeutics, Inc	2J-3 Ultrasonic Mechanical Relaxation (UMR) Imaging. M. Sridhar [*] , C. Pellot-Barakat, and M. F. Insana, UC, Davis, CA	3J-2 Real-Time Rectilinear 3-D Ultrasound Using Receive Mode Multiplexing. J. T. Yen [*] and S. W. Smith, Duke University	4J-3 (Invited) New Developments in Nonlinear Elastic Wave NDT and NDE. P. A. Johnson ^{*1} , A. Sutin ² , and J. TenCate ¹ , ¹ Los Alamos National Laboratory, ² Stevens Institute of Technology	
2:15 p.m.	1J-4 In Vivo Comparison of Multiple Pulse and CW Strategies for Microbubble-Enhanced Ultrasound Therapy. B. C. Tran [*] , J. Seo, J. B. Fowlkes, and C. A. Cain, University of Michigan	2J-4 General Fractional Derivative Viscoelastic Models applied to Vibration Elastography. H. Liu ^{*1} , L. Taylor ² , and T. Oliphant ¹ , ¹ Brigham Young University, Provo, UT, ² University of Rochester, Rochester, NY	3J-3 A Two Dimensional Array Probe that has a Huge Number of Active Channels. S. Tezuka ^{*1} , S. Hashimoto ¹ , T. Togasaki ² , Y. Miyajima ¹ , and Y. Seo ¹ , ¹ Medical Systems Company, Toshiba Corporation, ² Corporate Manufacturing Engineering Center, Toshiba Corporation		
2:30 p.m.	1J-5 Kidney Blood Flow Occlusion by Acoustic Droplet Vaporization. O. D. Kripfgans [*] , C. M. Orifici, P. L. Carson, and J. B. Fowlkes, University of Michigan Health System, Ann Arbor, MI, USA	2J-5 Ultrasound Imaging of Soft Tissue Shear Viscosity. S. R. Aglyamov ^{*1,3} , S. Park ¹ , Y. A. Ilinskii ² , and S. Y. Emelianov ¹ , ¹ Department of Biomedical Engineering, The University of Texas at Austin, ² Department of Mechanical Engineering, The University of Texas at Austin, ³ Institute of Mathematical Problems in Biology, Russian Academy of Sciences	3J-4 High Element Count Two Dimensional Transducer Array. E. Girard, S. Zhou [*] , W. Walker, T. Blalock, and J. Hossack, University of Virginia	4J-4 High Resolution Mapping of Nonlinear MHz Ultrasonic Fields using a Scanned Scatterer. P. Kaczkowski ^{*1} , B. Cunitz ¹ , V. Khokhlova ² , and O. Sapozhnikov ² , ¹ University of Washington, Seattle WA, USA, ² Moscow State University, Moscow, Russia	
2:45 p.m.	1J-6 Duration of Ultrasound and Bubbles Enhanced Cell Membrane Permeability. A. van Wamel [*] , A. Bouakaz, and N. de Jong, Thoraxcentre, Erasmus University Medical Center, ICIN	2J-6 Complex Stiffness Quantification Using Ultrasound Stimulated Vibrometry. S. Chen [*] , M. Fatemi, and J. F. Greenleaf, Mayo Clinic, Rochester, MN	3J-5 Theoretical Assessment of a Crossed Electrode 2-D Array for 3-D Imaging. C. E. Morton [*] and G. R. Lockwood, Queen's University, Kingston, Canada	4J-5 Focusing of Ultrasound in Composite Medium Using Time Reversal Acoustics. A. Sutin and A. Sarvazyan [*] , Artann Laboratories	

3:00 p.m. —4:30 p.m.

Wednesday, October 8, 2003, Poster Sessions

Honolulu, Hawaii

<p><i>Session P3A</i> MEDICAL SIGNAL PROCESSING Chair: J. Jensen Danish Technical University</p>	<p><i>Session P3B</i> MEDICAL IMAGING Chair: N. de Jong Erasmus Medical Centre</p>	<p>P3C-2 Annular Array Beamforming for 2D Arrays With Reduced System Channels. C. R. Hazard*, R. A. Fisher, D. M. Mills, L. S. Smith, K. E. Thomenius, and R. G. Wodnicki, GE Global Research, Niskayuna, NY</p>	<p>P3D-3 Excitation and Measurement of Flexural Waves in Arterial Vessels. X. Zhang*, R. R. Kinnick, M. Fatemi, and J. F. Greenleaf, Mayo Clinic</p>	<p><i>Session P3F</i> ELASTICITY SIGNAL PROCESSING Chair: E. Ebbini University of Minnesota</p>
<p>P3A-1 Kalman Filter Motion Detection for Vibro-acoustography. Y. Zheng*¹, S. Chen², W. Tan¹, and J. Greenleaf², ¹Saint Cloud State University, St. Cloud, MN, ²Mayo Foundation, Rochester, MN</p>	<p>P3B-1 A Virtual Environment for the Evaluation, Validation and Optimization of Strain and Strain Rate Imaging. J. D'hooge*¹, S. I. Rabben², P. Claus¹, F. Irgens³, J. Thoen¹, F. Van de Werf¹, and P. Suetens¹, ¹Catholic University, Leuven, Belgium, ²Rikshospitalet University Hospital, Oslo, Norway, ³NTNU, Trondheim, Norway</p>	<p>P3C-3 Direct Sampled I/Q Beamforming: A Strategy for Very Low Cost Ultrasound. W. F. Walker, J. A. Hossack*, and T. N. Blalock, University of Virginia</p>	<p>P3D-4 Imaging of Cross-Sectional Elasticity in Short-Axis Plane of Arterial Wall by Transcutaneous Ultrasound. N. Nakagawa*, H. Hasegawa, and H. Kanai, Graduate School of Engineering, Tohoku University</p>	<p>P3F-1 Description of a New Strain and Displacement Estimator for Elastography. J. Fromageau*, G. Gimenez, and P. Delachartre, CREATIS UMR 5515 affiliated to Inserm</p>
<p>P3A-2 Sinogram Enhancement for High-Resolution Ultrasonic Transmission Tomography Using Nonlinear Anisotropic Coherence Diffusion. T.-S. Kim*, C. Huang, J.-W. Jeong, D. C. Shin, M. Singh, and V. Z. Marmarelis, University of Southern California, Los Angeles, CA</p>	<p>P3B-2 Clinical Demonstration of Functional Wave Front of Intramyocardial Ischemic Region in Patients with Coronary Stenosis. Y. Koiba*¹, B. H. Ong¹, M. Sutoh¹, K. Iwabuchi¹, Y. Kagaya¹, J. Watanabe¹, K. Shirato¹, H. Hasegawa², and H. Kanai², ¹Graduate School of Medicine, Tohoku University, ²Graduate School of Engineering, Tohoku University</p>	<p>P3C-4 Development of a Real Time Digital High Frequency Annular Array Ultrasound Imaging System. P.-J. Cao*¹, C. Hu¹, E. Gottlieb¹, N. Karkhanis², K. Snook², and K. K. Shung¹, ¹University of Southern California, ²The Penn State University</p>	<p>P3D-5 Staging of Venous Thrombosis using Ultrasound Elastography. S. Siebers*¹, B. Geier², D. Muth-Werthmann², A. Mumme², and H. Ermert¹, ¹Institute of High Frequency Engineering, Ruhr-University Bochum, ²Division of Vascular Surgery, Department of Surgery, Ruhr-University Bochum</p>	<p>P3F-2 Spatial Resolution in Elasticity Imaging. J. Liu* and M. F. Insana, UCSD, CA</p>
<p>P3A-3 Transcutaneous Localization of Arterial Bleeding by Two-dimensional Ultrasonic Imaging of Tissue Vibrations. S. Sikdar*, K. W. Beach, and Y. Kim, University of Washington, Seattle, WA, USA</p>	<p>P3B-3 Influence of Acoustic Intensity on the Second-harmonic Beam Profile. T. Varslot*, T. Johansen, R. Hansen, B. Angelsen, and H. Torp, Norwegian University of Science and Technology, Trondheim, Norway</p>	<p>P3C-5 Observation of Dynamic Structure Using High Speed Ultrasound 3D Imaging System. M. Miura*¹, Y. Tamura¹, H. Yanagida¹, C. Ishihara², N. Okada³, S. Ishigami⁴, and T. Muramatsu⁵, ¹Yamagata University, ²Akishima Laboratories(MITSUI ZOSEN)Inc., ³Honda Electronics Co., LTD., ⁴Sony LSI Design Inc., ⁵Tohoku University</p>	<p>P3D-6 Vascular Elasticity from Regional Displacement Estimates. F. A. Lupotti*, J. J. Mai, C. Pellot-Barakat, and M. F. Insana, University of California at Davis</p>	<p>P3F-3 Edge-Preserving Image Reconstruction For Young's Modulus Recovery From Ultrasonic Data. A. Jarrot, P. Delachartre*, and M. Robini, CREATIS, CNRS Research Unit (UMR 5515) affiliated to INSERM, Lyon, France</p>

<p>P3A-4 K-Space Model of Motion Artifacts in Synthetic Transmit Aperture Ultrasound Imaging. S. I. Nikolov* and J. A. Jensen, Technical University of Denmark</p>	<p>P3B-4 Investigation of Scatterer Dependency in Medical Ultrasound Aberration Correction. S.-E. Maasoey, T. Varslot, and B. Angelsen, Norwegian University of Science and Technology</p>	<p>P3C-6 Phased Subarray Imaging for Low-Cost, Wideband Coherent Array Imaging. J. A. Johnson¹, O. Oralkan¹, M. Karaman², and B. T. Khuri-Yakub¹, ¹Stanford University, ²Isik University</p>	<p><i>Session P3E</i> 3D IMAGING Chair: J. Hossack University of Virginia</p>	<p>P3F-4 High Sensitivity Vibration Amplitude Estimation using Pulse Echo Doppler Ultrasound. S. Zhao*¹, Y. Zheng¹, S. Chen², and J. Greenleaf², ¹Saint Cloud State University, St. Cloud, MN, ²Mayo Foundation, Rochester, MN</p>
<p>P3A-5 Clustering and Detecting 2-D Motion Fields in Ultrasonic Images Based on Regression with Respiration and MRFs. N. Tagawa*¹, A. Minagawa¹, T. Moriya¹, and S. Minohara², ¹Tokyo Metropolitan University, Tokyo, Japan, ²National Institute of Radiological Science, Chiba, Japan</p>	<p>P3B-5 Simulations of the Nonlinear Acoustic Pressure Field without using the Parabolic Approximation. K. Huijssen*², A. Bouakaz¹⁻³, M. Verweij², and N. deJong¹⁻³, ¹Erasmus Medical Center, Rotterdam The Netherlands, ²Delft University of Technology, Delft, The Netherlands, ³ICIN Utrecht The Netherlands</p>	<p><i>Session P3D</i> VASCULAR ELASTICITY Chair: S. Emelianov University of Texas</p>	<p>P3E-1 Further Development of Synthetic Aperture Real-Time 3D Scanning with a Rotating Phased Array. S. I. Nikolov*¹, B. G. Tomov^{1,2}, F. Gran¹, and J. A. Jensen¹, ¹Technical University of Denmark, ²B-K Medical A/S, Denmark</p>	<p>P3F-5 Inversion Elasticity Reconstruction of Soft Tissue Using Split-and-Merge Strary from Strain Map of Ultrasound Image Sequence. J. Li*¹, A. Noble¹, L. Han², and M. Burcher¹, ¹University of Oxford, Oxford, UK, ²University of Cambridge, Cambridge, UK</p>
<p>P3A-6 A New Algorithm for Continuous Time Delay Estimation Using Sampled Data. F. Viola* and W. F. Walker, University of Virginia, Dept. of Biomedical Engineering</p>	<p><i>Session P3C</i> BEAMFORMING III Chair: R. Chiao GE Medical</p>	<p>P3D-1 Intravascular Young's Modulus Reconstruction using a Parametric Finite Element Model. R. A. Baldewsing*¹, C. W. J. Oomens², and A. F. W. Van der Steen^{1,3}, ¹University Medical Center Rotterdam, ²Eindhoven University of Technology, ³Inter-university Cardiology Institute of the Netherlands</p>	<p>P3E-2 Investigation in the Feasibility of 3D Synthetic Aperture Imaging. S. I. Nikolov* and J. A. Jensen, Technical University of Denmark</p>	<p>P3F-6 Phase-Coupled Two-Dimensional Speckle Tracking Method. X. Luo, H. Lee*, and E. Ebbini, University of Minnesota, Twin Cities, MN, USA</p>
	<p>P3C-1 Adaptive 3D Beamforming for Ultrasound Systems Deploying Linear and Planar Phased Array Probes. A. Dhanantwari¹, S. Stergiopoulos¹, C. Parodi*², F. Bertora³, P. Pellegritti³, and A. Questa³, ¹Defence R&D Toronto Canada, ²DIBE Genova Italy, ³Esaote S.p.A. Genova Italy</p>	<p>P3D-2 Non-Invasive Elasticity Imaging in Small Vessels: Experiments on Tissue-Mimicking Phantoms. R. L. Maurice*¹, M. Daronat¹, Z. Qin¹, F. S. Foster², and G. Cloutier¹, ¹University of Montreal Hospital, Research Center, Montreal, Quebec, Canada, ²University of Toronto, Toronto, Ontario, Canada</p>	<p>P3E-3 Evaluation of High-speed 3D Imaging System which Utilizes Coded Wavefront. N. Okada*¹, Y. Tamura², C. Ishihara³, M. Miura², H. Yanagida², M. Sato¹, N. Ishii², T. Aoki³, and T. Hisamoto³, ¹Honda Electronics Co., Ltd., ²Yamagata University, ³Akishima Laboratories (Mitusi Zosen), Inc.</p>	

3:00 p.m. —4:30 p.m.

Wednesday, October 8, 2003, Poster Sessions

Honolulu, Hawaii

<p><i>Session P3G</i> HIGH RESOLUTION IMAGING Chair: H. Ermert University of Bochum</p>	<p>P3H-3 Capacitive Ultrasonic Transducers with a New Vibrating Structure. M. Pappalardo*, G. Caliano, A. Caronti, and F. D'Alessio, Dip. di Elettronica - Università Roma Tre</p>	<p><i>Session P3J</i> TRANSDUCER MATERIALS III Chair: Y. Takeuchi Kagoshima University</p>	<p><i>Session P3K</i> THIN FILM BAW: MATERIALS AND RESONATORS I Chair: F. Hickernell University of Arizona</p>	<p>P3L-3 Production System Dedicated to Piezo Electric Films for BAW Devices. S. Krassnitzer*, S. Kadlec, E. Kuegler, Ch. Lambert, and P. Gruenenfelder, Unaxis Balzers Ltd</p>
<p>P3G-1 High Frequency Linear Array Scanner for the Imaging of Small Rodents. T. Anderson^{*1}, M. Denvir¹, I. Sharif¹, D. Anderson¹, A. Findlay², and W. N. McDicken¹, ¹University of Edinburgh, Edinburgh, Scotland, ²Dynamic Imaging Ltd, Livingston, Scotland</p>	<p>P3H-4 Experimental Study of Acoustic Coupling in Capacitive Micromachined Ultrasonic Transducer Arrays by Optical Interferometry. A. Caronti^{*1}, D. Fiasca¹, G. Caliano¹, A. Iula¹, E. Cianci², and M. Pappalardo¹, ¹University Roma Tre, Roma, Italy, ²IFN-CNR, Roma, Italy</p>	<p>P3J-1 Measurement of all the Material Properties of PMN-PT Single Crystals Grown by the Solid-State-Crystal-Growth (SSCG) Method. C. Y. Jung^{*1}, S. H. Lee¹, S. S. Lee¹, Y. R. Roh¹, H. Y. Lee², and J. H. Han³, ¹Kyungpook National University, Daegu, Korea, ²Sun Moon University, Asan, Korea, ³Prosonic Co., Ltd, Kyongju, Korea</p>	<p>P3K-1 Fabrication and Characteristics of Air-Gap Type BAW Resonator. S. G. Kim^{*1}, S. M. Lim¹, J. H. Oh², H. J. Kim², S. J. Kwon¹, J. S. Kim¹, Y. H. Shin¹, and N. H. Lee¹, ¹Kyungwon University, ²Seoul National University</p>	<p>P3L-4 Sputtered AlN Thin Films on Si for MEMS Resonators: Relationship between Microstructure and Piezoelectric Properties. B. Sylvia¹, V. Lugh², D. R. Marx^{*1}, S. Mishin¹, and D. R. Clarke², ¹Advanced Modular Sputtering, Inc., Goleta CA, ²Materials Department, UC Santa Barbara</p>
<p>P3G-2 Trade Off Study on Different Envelope Detectors for B-mode Imaging. M. Schlaikjer^{*1,2}, J. P. Bagge¹, and J. A. Jensen², ¹B-K Medical A/S, Herlev, Denmark, ²Center for Fast Ultrasound Imaging, Oersted*DTU, Kgs. Lyngby, Denmark</p>	<p><i>Session P3I</i> CMUT DESIGN AND MODELING Chair: J.-F. Gelly Thales Ultrasound Probes</p>	<p>P3J-2 High Temperature Morphotropic Phase Boundary Piezoelectrics. E. F. Alberta^{*1}, P. W. Rehrig¹, W. S. Hackenberger¹, and T. R. Shrout², ¹TRS Technologies, Inc., ²The Pennsylvania State University</p>	<p>P3K-2 Temperature Characteristics of Solidly Mounted Piezoelectric Thin Film Resonators. S. Ohta^{*1}, K. Nakamura¹, A. Doi², and Y. Ishida², ¹Graduate School of Engineering, Tohoku University, ²Kinseki, Ltd</p>	<p><i>Session P3M</i> NDE IMAGING Chair: E. Furgason Purdue University</p>
<p>P3G-3 Multi Element Synthetic Aperture Transmission using a Frequency Division Approach. F. Gran* and J. A. Jensen, Technical University of Denmark</p>	<p>P3I-1 (Invited) Comparison of Piezoelectric (Thickness Mode) and MEMS Transducers. J. F. Gelly^{*1}, F. Lanteri¹, W. Steichen², and S. Ballandras³, ¹Thales Ultrasound Probes Sophia-Antipolis France, ²Temex-Microsonics Sophia-Antipolis France, ³CNRS/LPMO Besancon France</p>	<p>P3J-3 Comparative Performances of New KNN Lead-Free Piezoelectric Materials and Classical Lead-Based Ceramics for Ultrasonic Transducer Applications. G. Feuillard¹, V. Loyau¹, T. Wurlitzer², E. Ringgaard², W. Wolny², B. Malic³, M. Kosec³, A. Barzegar⁴, D. Damjanovic⁴, and N. Setter¹, ¹LUSSI-GIP Ultrasons, ²Ferropem Piezoceramics A/S, ³Institut Josef Stefan, ⁴LC-EPFL, Laboratoire de Céramique</p>	<p>P3K-3 Preparation of AZO/ZnO/AZO/SiO₂/Si Thin Film for FBAR. T. Kang¹, M. J. Keum¹, I. H. Sohn², K. Kim³, J. B. Lee³, and K. H. Kim¹, ¹University of Kyungwon at Songnam, KyungGi, South Korea, ²College of Shinsung at Dangjin, Chungnam, South KOREA, ³University of Texas at Dallas, Richardson, TX, USA</p>	<p>P3M-1 Ultrasonic Image Reconstruction Using Mode-Converted Rayleigh Wave Technique. D.-S. Son¹ and J. -G. Chung², ¹Raynar, HTVC 5114 KAIST Yusung-Ku Daejeon, Korea, ²Chonbuk Nat. Univ., Chonju, Korea</p>

<p>P3G-4 A New Technique for Improved Spatial Resolution in High Frame Rate Color Doppler Imaging. J Kirkhorn^{*1}, S. Bjærum¹, B. Olstad¹, K. Kristoffersen¹, and H. Torp², ¹GE Vingmed Ultrasound, ²Norwegian University of Science and Technology</p>		<p>P3J-4 Fabrication of Piezoelectric Thick Films for High Frequency Transducers. B. Xu[*], S. Buhler, and W. Wong, Palo Alto Research Center Inc.</p>	<p>P3K-4 Crystallographic Properties and Effective Electromechanical Coupling Coefficient of AlN Thin Film with Substrate Temperature. G. H. Kim^{*1}, M. J. Keum¹, Y. H. Shin¹, D. Park², J. B. Lee², and K. H. Kim¹, ¹Univ. of Kyungwon at SongNam, KyungGi-Do, South Korea, ²Univ. of Texas at Dallas, Richardson, TX, USA</p>	<p>P3M-2 Acoustical Imaging Evaluating of Thin Metal-Metal Adhesive Bonds. E. Yu. Maeva¹, I. A. Severina¹, F. M. Severin¹, A. S. Bugaev², and R. Gr. Maev^{*1}, ¹University of Windsor, ²Moscow Institute for Physics and Technology</p>
<p style="text-align: center;"><i>Session P3H</i> CMUT TECHNOLOGY AND APPLICATIONS II Chair: J.-F. Gelly Thales Ultrasound Probes</p>	<p>P3I-2 CAE Environment for the Design of Capacitive Micromachined Sound and Ultrasound Transducers. M. Hofer[*], M. Kaltenbacher, H. Landes, and R. Lerch, Department of Sensor Technology, University of Erlangen-Nuremberg, Germany</p>	<p>P3J-5 A Complete Range of Tape-Casted Piezoelectric Thick Films for High Frequency Ultrasonic Transducers. F. Levassort¹, T. Bove², E. Ringgaard², L.-P. Tran-Huu-Hue¹, T. Wurlitzer^{*2}, W. W. Wolny², and M. Lethiecq¹, ¹GIP Ultrasons/LUSSI, Blois, France, ²Ferroperm Piezoceramics A/S, Kvistgaard, Denmark</p>	<p style="text-align: center;"><i>Session P3L</i> THIN FILM BAW: MATERIALS AND RESONATORS II Chair: J. Larson Agilent</p>	<p>P3M-3 Inverse Study of Formation Parameters by Rayleigh Wave in Multilayered Media Containing Low-velocity Layers. L. Lu and B. Zhang[*], Institute of Acoustics, The Chinese Academy of Sciences</p>
<p>P3H-1 Recent Echographic Images with a 64 Elements cMUT 1D Array. G. Caliano^{*1}, R. Carotenuto², C. Longo¹, I. Gemma¹, A. Caronti¹, E. Cianci³, V. Foglietti³, and M. Pappalardo¹, ¹Dip. Ing. Elettronica - Università Roma Tre, ²DIMET - Università di Reggio Calabria, ³Istituto di Fotonica e Nanotecnologie - CNR</p>	<p>P3I-3 Finite Element Modeling of CMUTs Using a Perfectly Matched Layer for Fast Simulation. A. Bozkurt[*], Sabanci University</p>	<p>P3J-6 Multilayer 1-3 Piezocomposites - Theoretical and Experimental Study of Pillar Misalignment. J. F. Saillant^{*1}, S. Cochran¹, R. Berriet², K. Kirk¹, and G. Fleury², ¹University of Paisley, Paisley, United Kingdom, ²IMASONIC SA, Besancon, France</p>	<p>P3L-1 Dependence of the Electromechanical Coupling on the Degree of Orientation of c-Textured Thin AlN Films. J. Bjurström^{*1}, D. Rosén¹, I. Katardjiev¹, and V. Yanchev², ¹Solid State Electronics (Uppsala University), ²Faculty of Physics (University of Sofia)</p>	<p>P3M-4 Ultrasonic Standing Waves in Industrial Applications. M. Kristen^{1,2}, A. Döhle^{1,2}, H. Landes², J. Hoffelner², and R. Lerch^{*2}, ¹Robert Bosch GmbH, Stuttgart, Germany, ²University of Erlangen, Erlangen, Germany</p>
<p>P3H-2 Fabrication and Characterization of a new Capacitive Micromachined Ultrasonic Transducer (cMUT) using Polysilicon as Membrane and Sacrificial Layer Material. A. Buhrdorf¹, A. Lohfink², S. Junge^{*1}, P.-C. Eccardt², and W. Benecke¹, ¹IMSAS, University of Bremen, Germany, ²Siemens AG, München, Germany</p>	<p>P3I-4 2D Acoustically Actuated Single Crystal Silicon Micromachined Droplet Ejector Arrays. U. Demirci^{*1}, G. G. Yaralioglu¹, G. Perçin², and B. T. Khuri-Yakub¹, ¹Stanford University, ²Adeptent</p>	<p>P3J-7 Electromechanical Properties of Electrostrictive PVDF Polymers and Ultra-high Dielectric Constant Polymers. Q. M. Zhang[*], C. Huang, F. Xia, R. Klein, and K. Ren, The Pennsylvania State University, University Park, PA/USA</p>	<p>P3L-2 Growth of AlN Thin Film on Mo Electrode for FBAR Application. K.-W. Tay^{*1}, L. Wu^{1,2}, C.-L. Huang¹, and M.-S. Lin¹, ¹Department of Electrical Engineering, National Cheng Kung University, National Cheng Kung University, Tainan, Taiwan, R.O.C., ²F-Tech Corporation, Tainan, Taiwan, R.O.C.</p>	<p>P3M-5 Improving Pulsed Dark Field Method to Study Some New and Interesting Ultrasonic Phenomena. I. Nuñez[*], N. Benech, A. Arzua, and C. Negreria, Laboratorio de Acustica Ultrasonora</p>

3:00 p.m. –4:30 p.m.

Wednesday, October 8, 2003, Poster Sessions

Honolulu, Hawaii

<p>P3M-6 Improved Photoacoustic Microscope for the Evaluation of Metal Thin Film. A. Minamide^{*1} and Y. Tokunaga², ¹Department of Electrical Engineering, Kanazawa Technical College, ²Kanazawa Institute of Technology</p>	<p>P3N-4 RSPUDT Filters Based on Different Width Split Fingers. P. Ivanov^{*1}, A. Danilov¹, V. Makarov¹, and J. Dai², ¹Moscow State Engineering Physics Institute, Moscow, Russia, ²RF Monolithics Inc., Dallas, USA</p>	<p><i>Session P3P</i> SAW MATERIAL Chair: S. Jen, Crystal Photonics, Inc.</p>		
<p>P3M-7 NDT of Tilted and Wedge-Type Sub-surface Defects by Photoacoustic Microscopic Imaging. H. Endoh[*], K. Miyamoto, Y. Hiwatashi, and T. Hoshimiya, Tohoku Gakuin University</p>	<p>P3N-5 Fabrication of Timing Extraction Circuit Integrating Photodetector and SAW Filter on Piezoelectric Substrate. K. Koh[*], T. Deguchi, C. Kaneshiro, and K. Hohkawa, Kanagawa Institute of Technology</p>	<p>P3P-1 Optimal Orientations of Lithium Niobate for Resonator SAW Filters. N. F. Naumenko^{*1} and B. P. Abbott², ¹Moscow Steel and Alloys Institute, ²Sawtek Inc.</p>		
<p>P3M-8 The Trial of Number Measurement of the Pollen of <i>Cryptomeria japonica</i> using Photoacoustic Microscope. K. Miyamoto[*] and T. Hoshimiya, Tohoku Gakuin University</p>	<p><i>Session P3O</i> SAW FILTERS AND TRANSDUCERS II Chair: B. Abbott Triquint Semiconductor</p>	<p>P3P-2 Temperature Stable Pseudo-Surface Acoustic Waves on Lithium Tantalate. V. I. Cherednick[*] and M. Y. Dvoesherstov, State university, Nizhny Novgorod, Russia</p>		
	<p>P3O-1 Balanced Wideband Three-Transducer Low-Loss SAW Filters Using Tapered IDTs. S. A. Doberstein[*], ONIIP, Omsk, Russia</p>	<p>P3P-3 Longitudinal Leaky Surface Acoustic Waves in Periodic Systems of Metal Electrodes on Lithium Niobate. Y. V. Gulyaev[*] and V. I. Grigorievski, IRE RAS, Moscow, Russia</p>		

<p align="center">Session P3N SAW FILTERS AND TRANSDUCERS I Chair: G. Kovacs EPCOS AG</p>	<p>P30-2 Miniaturized SAW Filter Structure Using Unidirectional Quadrature IDT Coupler. T. Shiba*, M. Ide, and Y. Fujita, Hitachi Media Electronics Co., Ltd.</p>	<p>P3P-4 Shear-Horizontal-Type Surface Acoustic Wave on Langasite with Au or Ta₂O₅ Thin Film. S. Kakio*, M. Nozawa, and Y. Nakagawa, University of Yamanashi, Kofu, Japan</p>		
<p>P3N-1 Unidirectional Interdigital Transducers using Very Thin Film Grating SAW Substrates and Application to Wide Band Low Loss Filters. K. Yamanouchi* and Y. Sato, Tohoku Institute of Technology</p>	<p>P30-3 A Novel Design Technique for Balanced SAW Filters with a Desired Matching Impedance. H. Nakamura*¹, S. Tsuzuki², T. Ishizaki¹, and T. Yamada¹, ¹Matsushita Electric Industrial Co., Ltd., ²Matsushita Electronic Components Co., Ltd.</p>	<p>P3P-5 Sensitivity of Interface Acoustic Waves to the Nature of the Interface. S. Clatot¹, V. Laude*¹, A. Reinhardt¹, M. Wilm¹, W. Daniau¹, S. Ballandras¹, R. Lardat², and M. Solal², ¹LPMO / CNRS, Besançon, France, ²TEMEX Microsonics, Sophia Antipolis, France</p>		
<p>P3N-2 SAW Filter Based on Parallel-Connected CRFs with Offset Frequencies. J. Meltaus*¹, V. P. Plessky^{1,2}, A. Gortchakov², and M. M. Salomaa¹, ¹Helsinki University of Technology, Espoo, Finland, ²SAWCOM SA, Belfort, France</p>	<p>P30-4 SAW Duplexers without $\lambda/4$ Phase Shifter for PDC Cellular Phone Systems. T. Onzuka*, S. Yoshimoto, and Y. Yamamoto, NRS Technologies Inc., Kawasaki, Japan.</p>			
<p>P3N-3 Low-Loss NSPUdT SAW Filters with Inclined Reflective Arrays. S. Doberstein*¹, S. Sakharov², A. Shvetsov³, and S. Zhgoon³, ¹ONIIP, Omsk, Russia, ²Fomos-Technology, Moscow Russia, ³MPEI, Moscow Russia</p>	<p>P30-5 SAW Duplexer for PCS in US with Excellent Temperature Stability. M. Kadota*, T. Nakao, E. Takata, M. Mimura, K. Nishiyama, T. Hada, and N. Taniguchi, Murata Mfg. Co., Ltd., Nagaokakyo-shi, Kyoto, Japan</p>			

4:30 p.m. – 6:00 p.m.

Wednesday, October 8, 2003

Honolulu, Hawaii

70

		<i>Session 1K</i> THERAPY MONITORING Chair: E. Ebbini University of Minnesota	<i>Session 2K</i> TISSUE CHARACTERIZATION Chair: H. Kanai Tohoku University	<i>Session 3K</i> TRANSDUCER MATERIALS II Chair: M. Schafer Sonic Tech. Inc.	<i>Session 4K</i> BIOLOGICAL APPLICATIONS Chair: N. Batra Naval Research Laboratory	
		Tapas 1	Tapas 2	Tapas 3	Honolulu	South Pacific
4:30 p.m.	1K-1 On-line Assessment of HIFU Beams and Lesion Monitoring Using Dual-Transducer Modes. F. L. Lizzi, J. A. Ketterling*, R. Muratore, K. Alam, and S. Ramachandran, Riverside Research Institute, New York, NY	2K-1 Diagnosis of Osteoporosis using Nonlinear Acoustics. L. Hoff* ¹ , K. G. Oygarden ¹ , E. K. Hagen ¹ , and J. A. Falch ² , ¹ Odetect AS, Lorenskog, Norway, ² Aker University Hospital, Oslo, Norway	3K-1 Fabrication and Modeling of Inversion Layer Ultrasonic Transducers Using LiNbO₃ Single Crystal. Q. F. Zhou* ¹ , J. Cannata ¹ , H. K. Guo ¹ , K. K. Shung ¹ , C. Z. Huang ² , and V. Marmarelis ² , ¹ NIH transducer Resource Center, University of Southern California, Los Angeles, CA, ² Alfred E. Mann Institute, University of Southern California, Los Angeles, CA	4K-1 (Invited) Applications of Ultrasound Stimulated Vibro-acoustography. J. Greenleaf* and M. Fatemi, Mayo Clinic Rochester, MN		
4:45 p.m.	1K-2 Temperature Dependence of Ultrasonic Backscattered Energy in Images Compensated for Tissue Motion. R. M. Arthur*, J. W. Trobaugh, W. L. Straube, E. G. Moros, and S. Sangkatumwong, Washington University in St. Louis	2K-2 Differentiation of Tumor Types In Vivo by Scatterer Property Estimates and Parametric Images Using Ultrasound Backscatter. M. L. Oelze* ¹ , J. F. Zachary ² , and W. D. O'Brien, Jr. ^{1,2} , ¹ Department of Electrical and Computer Engineering, University of Illinois, ² Department of Bioengineering, University of Illinois	3K-2 The Computation of the k Factor for Lossy Materials Around Resonance. N. Lamberti* ¹ and M. Pappalardo ² , ¹ Dip. di Ing dell'Informazione e Ing. Elettrica, Università Salerno, ² Dip. di Ingegneria Elettronica, III Università di Roma			

5:00 p.m.	1K-3 Integrated 3D Intracardiac Echo and Ultrasound Ablation. K. L. Gentry* and S. W. Smith, Duke University Department of Biomedical Engineering	2K-3 Progress in Characterizing and Imaging Prostate Tissues for Guiding Prostate Biopsies and Planning and Targeting Treatment of Prostate Cancer. E. J. Feleppa ¹ , S. K. Alam ^{*1} , P. Lee ¹ , S. Urban ¹ , A. Kalisz ¹ , J. Ketterling ¹ , C. R. Porter ² , F. Arias-Mendoza ³ , and J. Kutcher ³ , ¹ Riverside Research Institute, ² Virginia Mason Medical Center, ³ New York Presbyterian Medical Center	3K-3 Effect of Matching Layer on Acoustic Lens Suppressing Lamb Wave Formation. T. Azuma ^{*1} , K. Ishida ² , J. Kubota ² , Y. Sato ² , K. Sasaki ¹ , K. Kawabata ¹ , N. T. Sanghvi ³ , and S. Umemura ¹ , ¹ Hitachi Central Research Laboratory, Tokyo, Japan, ² Hitachi Medical Corporation, Chiba, Japan, ³ Focus Surgery, Inc. Indianapolis, Indiana, U. S. A.	4K-2 An Ultrasonic Micromachined Integrated Capacitive Sensor for Biological Sample Preparation on a Microfluidic Platform. A. Sathaye ^{*1} and A. Lal ^{1,2} , ¹ SonicMEMS Laboratory, University of Wisconsin-Madison, WI, USA, ² SonicMEMS Laboratory, Cornell University, Ithaca, NY, USA	
5:15 p.m.	1K-4 Feasibility of 3D Real-Time Motion Correction for H.I.F.U. Applications. M. Pernot*, M. Tanter, and M. Fink, Laboratoire Ondes et Acoustique, E.S.P.C.I., C.N.R.S. UMR 7587, Université Paris VII	2K-4 Ultrasound Scatterer Size Estimation Technique Based on a 3D Acoustic Impedance Map from Histologic Sections. J. Mamou*, M. L. Oelze, J. F. Zachary, and W. D. O'Brien, Jr., University of Illinois at Urbana-Champaign	3K-4 Characterization of Ultra-thin Quarter-wavelength Matching Layers of High Frequency Ultrasonic Transducers. H. Wang ^{*1} , W. Cao ¹ , Q. Zhou ² , and K. K. Shung ² , ¹ The Pennsylvania State University, University Park, PA/USA, ² University of Southern California, Los Angeles, CA/USA	4K-3 Ultrasonic Separation in Microfluidic Capillaries. M. K. Araz*, C. H. Lee, and A. Lal, SonicMEMS Laboratory, Cornell University, Ithaca, NY	
5:30 p.m.	1K-5 MRI-Monitored Ultrasonic Heating Allows for the Spatially Controlled <i>In Vivo</i> Expression of the Transgene Luciferase in Canine Prostate. C. Silcox ^{*1,2} , R. C. Smith ² , R. King ¹ , N. McDannold ¹ , P. Bromley ¹ , K. Walsh ³ , and K. Hynynen ¹ , ¹ Brigham & Women's Hospital/Harvard Medical School, ² Harvard-MIT Division of Health Sciences and Technology, ³ Boston University School of Medicine, ⁴ Gene Control (Geneva, Switzerland)	2K-5 Scatterer Size Estimation using a Generalized Ultrasound Attenuation-Compensation Function to Correct for Focusing. T. A. Bigelow* and W. D. O'Brien Jr., University of Illinois, Urbana-Champaign, IL, USA	3K-5 Elevation Focusing of a Phased Array Using Variable Ultrasound Propagation Speed in Inter-mediate Media. S. Sato*, H. Katusura, K. Kobayashi, and T. Iwashita, Research Laboratory Aloka Co., Ltd.	4K-4 A Micro Ultrasonic Scalpel with Sensing Function. T. Nagoya ^{*1} and M. K. Kurosawa, Tokyo Institute of Technology	
5:45 p.m.	1K-6 Real-time Monitoring of the Transients of HIFU-induced Lesions. H. Yao and E. Ebbini, University of Minnesota, Twin Cities, MN, USA	2K-6 Tissue Differentiation Based on Radiofrequency Echographic Signal Local Spectral Content. L. Masotti, E. Biagi, L. Breschi, S. Granchi*, F. Di Lorenzo, and E. Magrini, Department of Electronic and Telecommunication	3K-6 Consistent Production of Air-Backing Equivalent Low Impedance Material using New Materials. Y. Takeuchi*, Kagoshima University, Dept. of ICS	4K-5 Numerical Validation of an Advanced Finger Print Sensor Based on 1-3 Piezo-Composites. R. M. Schmitt*, W.G. Scott, and R. Irving, Cross Match Technologies, Inc.	