Sunday, March 1, 2009

3:00 PM - 8:00 PM Registration open, Hyatt Regency Monterey

5:30 PM - 7:30 PM Opening Reception, Hyatt Regency Monterey

Technical Program

Monday, March 2, 2009

8:00 AM Registration open

8:30 AM

INTRODUCTION

Joie Jones
University of California, Irvine

SESSION 1-1: BIOMEDICAL IMAGING, I

PERFORMANCE OF A METHOD TO STANDARDIZE BREAST ULTRASOUND INTERPRETATION USING IMAGE PROCESSING AND CASE-BASED REASONING

Michael Andre, Michael Galperin, Ashley Berry, Ashley Taylor, Haydee Ojeda-Fournier, Mary O'Boyle, Linda Olson, and Christopher Comstock
University of California, San Diego

HIGH RESOLUTION ULTRASONIC METHOD FOR 3D FINGERPRINT RECOGNIZABLE CHARACTERISTIC IN BIOMETRICS IDENTIFICATION

Roman Gr. Maev, Eugene Yu. Bakulin, Anna Maeva and Fedar Severin
University of Windsor, Canada

VISUALIZATION OF MICROVESSELS IN SKIN BY THREE-DIMENSIONAL ULTRASOUND MICROSCOPE

Yoshifumi Saijo, Kazuto Kobayashi, Naohiro Hozumi, Akira Tanaka, and Shingo Sakai
Tohoku University, Honda Electronics Co., Aichi Institute of Technology, Fukushima University, Kanebo Cosmetics Inc., Japan

INTRAVASCULAR ULTRASOUND PALPOGRAPHY AS AN IMAGING BIOMARKER IN CLINICAL TRIALS

Antonius FW van der Steen, Johannes A Schaar, Frits Mastik, Hector Garcia, Mike Danilouchkine and Patrick W Serruys
Thorax centre Erasmus, Netherlands

10:10 AM COFFEE BREAK

10:30 AM

SESSION 1-2: BIOMEDICAL IMAGING, II

ACOUSTIC IMAGING OF ISOTROPIC AND ANISOTROPIC THICK TISSUE

Bernhard R. Tittmann and Chiaki Miyasaka, Penn State University
Elena Maeva and Roman Gr. Maev, University of Windsor, Canada

HIGH FREQUENCY ULTRASOUND IMAGING OF CARTILAGE-BONE COMPLEX

Yoshihiro Hagiwara, Yoshifumi Saijo, Akira Ando, Kazuto Kobayashi, Akira Tanaka, Naohiro Hozumi, Kouki Hatori, and Eiji Itoi
Tohoku University, Honda Electronics Co., Fukushima University, Aichi Institute of Technology; Japan

ULTRASONIC DETECTION OF METASTASES IN DISSECTED LYMPH NODES OF CANCER PATIENTS

Ernest J. Feleppa, Jonathan Mamou, Junji Machi, Masaki Hata, Alain Coron, Eugene Yanagihara, and Pascal Laugier
Riverside Research Institute, University of Hawaii at Manoa, Université Pierre et Marie Curie, France and CNRS, France

TISSUE STIFFNESS FROM SDUV MEASUREMENTS

J. F. Greenleaf, S. Chen, M. Urban, I. Nenadic, M. Bernal, X. Zhang, and R. Kinnick
Mayo Clinic College of Medicine

LUNCH 12:00 – 2:00 PM

2:00 PM

SESSION 1-3: BIOMEDICAL IMAGING, III

VECTOR DOPPLER METHOD BASED ON AN AUTOMATIC TRANSVERSE ANGLE TRACKING PROCEDURE

Alessandro Dallai, Enrico Boni, Lorenzo Francalanci and Piero Tortoli
Università degli Studi di Firenze, Italy

PROPOSAL OF BLOOD FLOW IMAGING FOR CONTRAST ECHO BY USING COUNTER CROSSED BEAMS

Taishi EURA, Kenji YOSHIDA, Yoshiaki WATANABE, Toshiki TAKAYASU
Kentarou NAKAMURA, and Iwaki AKIYAMA
Doshisha University, Tokyo Institute of Technology, and Shonan Institute of Technology; Japan

RESOLVING THE LOCATION OF ACOUSTIC POINT SOURCES SCATTERED DUE TO THE PRESENCE OF A SKULL PHANTOM

J. Sadler, K. Shapoori, E. Malyarenko, A. Dicarlo, J. Dech, F. Severin, and R. Gr. Maev.
University of Windsor, Canada
Tessonics Corporation, USA

REFLECTION & SCATTERING OF ACOUSTICAL WAVES FROM A DISCONTINUITY IN ABSORPTION

Joie P. Jones, Sidney Leeman, Elizabeth Nolan, and David Lee
University of California at Irvine, and Hammersmith Hospital, UK

3:20 PM COFFEE BREAK

3:40 PM

SESSION 1-4: BIOMEDICAL IMAGING, IV

INTRACARDIAC FORWARD-LOOKING ULTRASOUND IMAGING CATHETERS USING CAPACITIVE MICROMACHINED ULTRASONIC TRANSDUCERS

Amin Nikoozadeh, Ira O. Wygant, Der-Song Lin, Ömer Oralkan, Kai Thomenius, Aaron Dentinger, Douglas Wildes, Gina Akopyan, Kalyanam Shivkumar, Aman Mahajan, Douglas N. Stephens, Matthew O'Donnell, David Sahn and Pierre T. Khuri-Yakub

Stanford University, General Electric Corporate Research & Development, University of California, Los Angeles, University of California, Davis, University of Washington, and Oregon Health and Science University, USA

CONFORMAL ULTRASOUND IMAGING SYSTEM

Rahul S. Singh, Shyam Natarajan, Michael Lee, David B. Bennett, Brian P. Cox, Martin O. Culjat, Elliott R. Brown, Warren S. Grundfest, and Hua Lee
CASIT, UCLA

BREAST IMAGING VIA 3D ACOUSTICAL INVERSE SCATTERING, THEORY

J. Wiskin, D. Borup, S. Johnson, B. Hanover, F. Setinsek, S. Olsen, M. Andre, and M. Berggren
Techniscan, Inc., University of Utah, UCSD, Breast Care and Imaging Center of Orange County

BREAST IMAGING VIA 3D ACOUSTICAL INVERSE SCATTERING, RESULTS

Authors J. Wiskin, D. Borup, M Andre, S. Johnson, K. Callahan, Y. Pariski, J. Hardwick, and J. Smith
Techniscan, Inc., University of Utah, UCSD, Breast Care and Imaging Center of Orange County

Tuesday, March 3, 2009

8:00 AM Registration open

8:30 AM

SESSION 2-1: ACOUSTIC MICROSCOPY

ULTRA-HIGH RESOLUTION THIN FILM THICKNESS DELINEATION USING REFLECTION PHASE-SENSITIVE ACOUSTIC MICROSCOPY

Esam T. Ahmed Mohamed, Albert Kamanyi, Moritz von Buttlar, Reinhold Wannemacher, Kristian Hillmann, Wilfred Ngwa and Wolfgang Grill
University of Leipzig, Germany; University of Central Florida, USA

ELASTICITY MAPPING OF PRECIPITATES IN POLYCRYSTALLINE MATERIALS USING ATOMIC FORCE ACOUSTIC MICROSCOPY

Anish Kumar, Ute Rabe, Sigrun Hirsekorn, and Walter Arnold
Fraunhofer Institute for Non-Destructive Testing (IZFP), Germany, Indira Gandhi Centre for Atomic Research, India, Saarland University, Germany

THE CHANGES OF ELASTIC PROPERTIES OF PERIODONTAL LIGAMENT AND MANDIBULAR CONDYLAR CARTILAGE DURING DEVELOPMENT

Kouki Hatori, Yoshihiro Hagiwara, Yoshifumi Saijo, Akira Ando, Yoshinori Ina, Koji Ando, Naru Shiraishi, Naohiro Doi, Yuko Suzuki, and Keiichi Sasaki
Tohoku University; Japan

SIGNAL PROCESSING FOR TIME-LAPSED CELL IMAGING WITH VECTOR-CONTRAST SCANNING ACOUSTIC MICROSCOPY

Moritz von Buttlar, Esam T. Ahmed Mohamed, and Wolfgang Grill
University of Leipzig, Germany

MAPPING OF ELASTIC STIFFNESS IN AN $\alpha+\beta$ TITANIUM ALLOY USING ATOMIC FORCE ACOUSTIC MICROSCOPY

Anish Kumar, Ute Rabe, and Walter Arnold
Fraunhofer Institute for Non-Destructive Testing (IZFP), Germany; Indira Gandhi Centre for Atomic Research, India; Saarland University, Germany

10:10 AM COFFEE BREAK

10:30 AM

SESSION 2-2: NDE

ACOUSTIC MICROSCOPY STUDY OF MECHANICAL PROPERTIES AND MICROSTRUCTURE OF BIO-COMPOSITE MATERIALS

Inna Severina and Elena Maeva
University of Windsor, Canada

A DEFECT LOCALIZATION PROCEDURE BASED ON WARPED LAMB WAVES

Luca De Marchi, Alessandro Marzani, Salvatore Caporale, and Nicolò Speciale
University of Bologna, Italy

SECOND HARMONIC DETECTION GENERATED FROM FASTENED BOLT

Makoto Fukuda and Kazuhiko Imano
Akita University, Japan

IN-LINE ULTRASONIC ARRAY SYSTEM FOR MONITORING DYNAMIC OF COATING FORMING BY COLD SPRAY PROCESS

M. Lubrick, S. Titov, V. Leshchynsky, D. Dzhurinskiy, and R. Gr. Maev
University of Windsor, Canada

LUNCH 12:00 – 2:00 PM

2:00 PM

SESSION 2-3: SYSTEM ANALYSIS, I

AN EXPERIMENTAL COMPARISON OF THERMOGRAPHIC AND ACOUSTIC METHODS FOR EVALUATION OF LAYERED STRUCTURES

D. Gavrilov, G. Ghodsi, E. Maeva and R. Gr. Maev
University of Windsor, Canada

AUTOMATIC REGION OF INTERESTS SEGMENTATION FOR COMPUTER AIDED CLASSIFICATION OF PROSTATE TRUS IMAGES

M. Scebran, A. Palladini, S. Maggio, L. De Marchi and N. Speciale
University of Bologna, Italy

AIR-COUPLED VIBROMETRY: MAKING LINEAR AND NONLINEAR SOUND IN AIR VISIBLE

Daniel Döring, Igor Solodov and Gerd Busse
Universität Stuttgart, Germany

ACOUSTIC MICROSCOPE INSPECTION OF CYLINDRICAL BUTT LASER WELDS

R.Gr. Maev and F. Severin
University of Windsor, Canada

3:20 PM COFFEE BREAK

3:40 PM

SESSION 2-4: SYSTEM ANALYSIS, II

MULTIPLE SCATTERING CONTRIBUTION TO TRABECULAR BONE BACKSCATTER

Janusz Wójcik, Jerzy Litniewski, and Andrzej Nowicki
Polish Academy of Sciences, Poland

A SIMPLE LINEAR MODEL OF ACOUSTIC IMAGING IN TEMPORAL AND DIRECTIONAL FREQUENCY SPACE

Toshio Ito, Masanori Sugimoto and Hiromichi Hashizume
University of Tokyo and National Institute of Informatics, Japan

DETERMINATION OF THE *B/A* OF BIOLOGICAL MEDIA BY MEASURING AND MODELING NONLINEAR DISTORTION OF PULSED ACOUSTIC WAVE IN TWO-LAYER SYSTEM OF MEDIA

TAMARA KUJAWSKA, JANUSZ WÓJCIK, AND ANDRZEJ NOWICKI
Polish Academy of Sciences, Poland

A CONSIDERATION OF MULTI-DIMENSIONAL SIMULATION OF NONLINEAR ACOUSTIC WAVE PROPAGATION USING THE CIP METHOD

Masahito Konno, Kan Okubo, Takao Tsuchiya, and Norio Tagawa
Tokyo Metropolitan University, Japan

BANQUET 7:00 – 9:00 pm

Wednesday, March 4, 2009

8:00 AM Registration open

8:30 AM

SESSION 3-1: SIGNAL ANALYSIS AND IMAGE PROCESSING, I

ULA-OP: A FULLY OPEN ULTRASOUND IMAGING/DOPPLER SYSTEM

Stefano Ricci, Luca Bassi, Andrea Cellai, Francesco Guidi and Piero Tortoli
Università degli Studi di Firenze, Italy

A STUDY OF SIMILARITY MEASURES FOR *IN VIVO* 3D ULTRASOUND VOLUME REGISTRATION

Umer Zeeshan Ijaz, Richard W. Prager, Andrew H. Gee, and Graham M. Treece
University of Cambridge, United Kingdom

IMAGE QUALITY IMPROVEMENT USING SYNTHETIC APERTURE FOCUSING TECHNIQUE DATA: A WAVELET APPLICATION

Pedro Acevedo, Adalberto Durán, and Ernesto Rubio
Universidad Nacional Autónoma de México, México

EXPECTATION MAXIMIZATION FOR JOINT DECONVOLUTION AND STATISTICS ESTIMATION

Martino Alessandrini, Alessandro Palladini, Luca De Marchi, and Nicolò Speciale.
University of Bologna, Italy

PARTICLE SWARM OPTIMIMIZATION FOR *IN VIVO* 3D ULTRASOUND VOLUME REGISTRATION

Umer Zeeshan Ijaz, Richard W. Prager, Andrew H. Gee, and Graham M. Treece
University of Cambridge, United Kingdom

10:10 COFFEE BREAK

10:30 AM

SESSION 3-2: SIGNAL ANALYSIS AND IMAGE PROCESSING, II

SHAPE IDENTIFICATION USING ROBUST REFINEMENTS OF KIRCHHOFF IMAGING FOR AN UNDERWATER INTRUDER

Jean-Francois Dord and Charbel Farhat
Stanford University

MULTI-VIEW ACOUSTIC SIZING AND CLASSIFICATION OF INDIVIDUAL FISH

Paul L. D. Roberts and Jules S. Jaffe
University of California, San Diego

ACOUSTIC IMAGE MODELS FOR NAVIGATION WITH FORWARD-LOOKING SONARS

Theodore Masek and Mathias Kölsch
Naval Postgraduate School

UNDERWATER ACOUSTICAL IMAGING AND SENSING SYSTEMS FOR HOMING AND DOCKING, NAVIGATION, AND COLLISION AVOIDANCE

Hua Lee
University of California, Santa Barbara

LUNCH 12:00 – 2:00 PM

2:00 PM

SESSION 3-3: SIGNAL ANALYSIS AND IMAGE PROCESSING, III

MICROBUBBLE BEHAVIOR IN COLLAGEN GEL UNDER STANDING WAVE ULTRASOUND IRRADIATION

Tatsuya Kumata, Akira Tsukamoto, Takashi Ushida, Kenji Yoshida, and Yoshiaki Watanabe
Doshisha University and University of Tokyo, Japan

OPTICAL IMAGING OF MICROBUBBLE BEHAVIORS IN ULTRASONIC FIELD: INTERACTIVE FORCE ACTING BETWEEN TWO BUBBLES

Kenji Yoshida, Takaaki Fujikawa, and Yoshiaki Watanabe
Doshisha University, Japan

THE USE OF QUALITY METRICS IN ULTRASONIC STRAIN IMAGING

Andrew Gee, Graham Treece, Lujie Chen and Richard Prager
University of Cambridge, UK

A GAUGE THEORY FORMULATION OF ACOUSTICAL IMAGING

W. S. Gan
Acoustical Technologies Singapore Pte Ltd., Singapore

3:20 PM COFFEE BREAK

3:40 PM

SESSION 3-4: SIGNAL ANALYSIS AND IMAGE PROCESSING, IV

HIGH RESOLUTION PULSE COMPRESSION IMAGING USING SUPER RESOLUTION FM-CHIRP CORRELATION METHOD (SCM)

Masaki Fujiwara, Kan Okubo, and Norio Tagawa
Tokyo Metropolitan University, Japan

APPLYING ECHOES' MEAN FREQUENCY SHIFT FOR ATTENUATION IMAGING IN TISSUE

Jerzy Litniewski, Andrzej Nowicki, and Ziemowit Klimonda
Polish Academy of Sciences, Poland

MEDICAL ULTRASOUND IMAGE DECONVOLUTION: SENSITIVITY TO SPEED OF SOUND AND CAPABILITY OF SPEED ESTIMATION

Ho-Chul Shin, Richard Prager, Henry Gomersall, Nick Kingsbury, Graham Treece, and Andrew Gee
University of Cambridge, United Kingdom

ACOUSTICAL TOMOGRAPHY OF NONLINEAR SCATTERERS IN PROCESSES OF THE SECOND AND THIRD ORDERS

V. A. Burov, A. A. Shmelev, and O. D. Rumyantseva
Moscow State University, Russia