

## **ISTU2011**

### **11<sup>th</sup> International Symposium on Therapeutic Ultrasound**

**Summary Program** - *supersedes the Preliminary Program*

All events are at the New York Marriott Marquis Hotel (1535 Broadway, New York, New York 10036 USA) on the 5<sup>th</sup> Floor (Westside Ballroom Complex), unless otherwise indicated.

For further information and updates, please visit the conference website [istu2011.org](http://istu2011.org)

For corrections or assistance please send a message to [info@istu2011.org](mailto:info@istu2011.org)

Co-Chairs

Robert Muratore & Elisa Konofagou

Sunday afternoon, 2011 April 10

1:00-6:00 PM (13:00/18:00)

4<sup>th</sup> Floor Ziegfeld Room

International Electrotechnical Commission

IEC SC62D Project Team 60601-2-62

2:00-7:00 PM (14:00/19:00)

4<sup>th</sup> Floor Brecht Room

ISTU Board

5:00-7:00 PM (17:00/19:00)

5<sup>th</sup> Floor Registration Booth

Registration

8:00-10:00 PM (20:00/22:00)

Carmine's Restaurant

200 West 44th Street

Welcome Reception



ISTU211 Summary Program

**Monday, April 11 Westside Ballroom North**

7:00 -- **Registration**

**Session-Plenary 1**

8:00-8:05 Welcome by the President Larry Crum  
8:05-8:15 Welcome by the Meeting Chairs Robert Muratore & Elisa Konofagou  
8:15-8:35 Feng Wu  
8:35-8:55 Kathy Ferrara

**Session 1A-Bubble enhanced delivery---Chair: Kathy Ferrara**

9:00-9:15 1569401123 Enhancement of Neuroprotective Effects of Erythropoietin by Focused Ultrasound with Microbubbles Wen-Mei Fu  
9:15-9:30 1569402599 High-intensity Focused Ultrasound-Mediated Doxorubicin Delivery with Thermosensitive Liposomes Jean-Michel Escoffre  
9:30-9:45 1569404391 Potentiating Chemotherapy with the Antivascular Effects of Ultrasound Stimulated Microbubbles David Goertz  
9:45-10:00 1569401299 Mechanisms for Vascular Bioeffects Induced by Ultrasound-activated Microbubbles Hong Chen

10:00-11:00 **Coffee Break, Exhibits, and Poster session P1-1**

**Session 1B-Sonoporation/Particle delivery---Chair: Mathias Fink**

11:00-11:15 1569400375 Prolonging the Expression Duration of Transfected DNA by Combining Sonoporation and PEI Nanoparticles Wen-Shiang Chen  
11:15-11:30 1569400571 Effects of Biological Conditions on Sonoporation Efficiency in Cancer Cells Samuel Pichardo  
11:30-11:45 1569403139 Pulsed HIFU Enhanced Penetration of Fluorescent Molecules Into Pancreas Tumors in Vivo Joo Ha Hwang  
11:45-12:00 1569403489 Ultrasound-enhanced Delivery of Antibiotics Into the Eye Marjan Nabili

12:00-1:00 **Lunch**

**Session 1C-Invited---Chair: Robert Muratore**

1:00-1:20 Mickael Tanter  
1:20-1:40 Kevin Sekins  
1:40-2:00 Jamie Tyler

**Session 1D-Neurostimulation and transcranial studies---Chair: Jamie Tyler**

2:00-2:15 1569413151 Hippocampal Culture Stimulus with 4-Megahertz Ultrasound Robert Muratore  
2:15-2:30 1569403737 Inflamed and Neuropathic Tissue is Preferentially Receptive to Stimulation by Intense Focused Ultrasound Pierre Mourad  
2:30-2:45 1569403721 Study of Thermal Effects of Ultrasound Stimulation on Sympathetic Nerves Yegor D Sinelnikov  
2:45-3:00 1569403623 Phase Aberration Correction Method for Focused Ultrasound in the Brain Elena Kaye

3:00-4:00 **Coffee Break, Exhibits, and Poster session P1-2 (student award competition)**

**Session 1E-Brain drug delivery---Chair: Kullervo Hynynen**

4:00-4:15 1569403685 Feasibility Study of a Single-Element Transcranial Focused Ultrasound System for Blood-Brain Barrier Opening Fabrice Marquet  
4:15-4:30 1569403031 A Pilot Study on BBB Disruption in Nonhuman Primates Using a Clinical MRI-guided Focused Ultrasound System Nathan McDannold  
4:30-4:45 1569401733 Targeted Delivery of Neural Stem Cells in the Rat Brain Via Focused Ultrasound-Induced Blood-Brain Barrier Disruption Juyoung Park  
4:45-5:00 1569402647 Delivery of Dopamine Transporter Tracer (PE2I) Through Blood Brain Barrier with Ultrasound and Microbubbles Sophie Serriere  
5:00-5:15 1569403643 Blood-Brain Barrier Permeability Dependence on Acoustic and Microbubble Parameters Fotios Vlachos  
5:15-5:30 1569398113 BBB Disruption with Unfocused Ultrasound Alone - a Paradigm Shift Albert Kyle

6:30-8:30 **Monday Reception Marriott Marquis 9th Floor Promenade**

ISTU211 Summary Program

**Monday, April 11 Westside Ballroom South**

7:00 -- **Registration**

**Session-Plenary 1 (Ballroom North)**

8:00-8:05  
8:05-8:15  
8:15-8:35  
8:35-8:55

**Session 2A- Uterine Fibroid HIFU---Chair: Nathan McDannold**

9:00-9:15 1569401193 MR-guided High Intensity Ultrasound Treatment of Uterine Fibroids with Temperature Mapping Yonghua Xu  
9:15-9:30 1569401387 MR-guided HIFU for Treatment of Uterine Fibroids in Patients with Bowel Lies Anterior to Uterus: Six Months Follow-Up Lian Zhang  
9:30-9:45 1569402609 Long-Term Follow-up Results of HIFU Ablation for Uterine Fibroids Wenzhi Chen  
9:45-10:00 1569402519 High Intensity Focused Ultrasound Ablation of Uterine Fibroids: Multi-factor Analysis Baorang Zhu

10:00-11:00 **Coffee Break, Exhibits, and Poster session P1-1**

**Session 2B-Treatment planning/assessment---Chair: Nick Yin**

11:00-11:15 1569387597 [F-18]FDG PET Imaging for Sensitive Tumor Margin Assessment Post MR-HIFU Ablation Treatment Nicole M Hijnen  
11:15-11:30 1569402095 Magnetic Resonance Imaging Evaluation of Patients with Hepatic Hydatid Disease After HIFU Ablation: Short Term Results Kun Zhou  
11:30-11:45 1569401245 Histological Evaluation of HIFU with Lower- Intensity Focused Ultrasound Pre-Exposure on Rabbit VX2 Liver Tumors Hairong Zou  
11:45-12:00 1569403653 Prolonged Enhanced Ablative Responses After HIFU Therapy for Malignant Tumors Joan Vidal-Jove

12:00-1:00 **Lunch**

**Session 2C-US-guided HIFU---Chair: Emad Ebbini**

1:00-1:15 1569403075 In Vivo Thermal Ablation Monitoring by Echo Decorrelation Imaging Swetha Subramanian  
1:15-1:30 1569401481 Changes in Quantitative Ultrasound Parameters During HIFU Application Goutam Ghoshal  
1:30-1:45 1569387509 Temperature Mapping for Ultrasound Scanner Using Backscattered Changes Jeremy Chenot  
1:45-2:00 1569403015 High-Frequency Ultrasound M-mode Monitoring of HIFU Ablation in Cardiac Tissue Ronald Kumon

**Session 2D-MR-guided HIFU---Chair: Sham Sokka**

2:00-2:15 1569402549 Fibroid Shrinkage Following MR-Guided Focused Ultrasound Ablation: Correlation to the Maximum Temperature Yuexi Huang  
2:15-2:30 1569403337 Improvement of Energy Efficiency in Volumetric MR-HIFU Ablation of Uterine Fibroids: Role of Treatment Cell Size Young-sun Kim  
2:30-2:45 1569403741 Non-invasive Estimation of Patient-specific Tissue Acoustic Properties for MRgFUS Urvi Vyas  
2:45-3:00 1569403107 Evaluation of Optic Nerve Function and Structural Integrity After Microbubble-Enhanced FUS Ablation of Brain Regions Nathan McDannold

3:00-4:00 **Coffee Break, Exhibits, and Poster session P1-2 (student award competition)**

**Session 2E-MR-guided HIFU---Kim Butts-Pauly**

4:00-4:15 1569403785 MR-guided Interstitial Thermal Therapy for the Treatment of Brain Tumors with a Multi-Element Ultrasound Probe Michael Canney  
4:15-4:30 1569402597 Precision of a 1MHz MR-guided Ultrasonic Brain Therapy Prototype: Experiments on 12 Fresh Cadavers Laurent Marsac  
4:30-4:45 1569402123 Development of the HIFU System for Use in the Intelligent Operating Room with MRI for Diseased Animal Therapy Jun Kubota  
4:45-5:00 1569402345 A Low-Cost, Easy-To-Handle Calibration Phantom for MR Thermometry in HIFU Fields Julian Haller  
5:00-5:15 1569403023 MRI-Guided Transurethral Ultrasound Therapy Enables Full Prostate Gland Coagulation William Apoutou N'Djin  
5:15-5:30 1569402901 Acoustic Holography and Nonlinear Modeling Methods to Characterize the Philips MR-Guided HIFU Source Wayne Kreider

6:30-8:30 **Monday Reception Marriott Marquis 9th Floor Promenade**

ISTU211 Summary Program

**Tuesday, April 12 Westside Ballroom North**

7:00 -- **Registration**

**Session 1H-Invited---Chair: Shin Umemura**

8:00-8:20 Mathias Fink

8:20-8:40 Constantin Coussios

8:40-9:00 Tom Leslie

**Session 1G-Transducers and devices---Chair: Ralf Seip**

9:00-9:15 1569403081 Prototype for Expulsion of Kidney Stones with Focused Ultrasound Michael Bailey

9:15-9:30 1569401731 Quantitative Transducer Characterization Using Infrared Thermography Matthew Myers

9:30-9:45 1569402257 Comparison Between 1-3 Piezocomposite and PZT Ceramic for HIFU Transducer Applications Gin-Shin Chen

9:45-10:00 1569402691 Measurement of Therapeutic Intensity Distributions Using an Infra-Red Camera Adam Shaw

10:00-11:00 **Coffee Break, Exhibits, and Poster session P2-1**

**Session 1H-Elasticity and acousto-optic monitoring---Chair: Mickael Tanter**

11:00-11:15 1569402993 In Vivo Localized Harmonic Motion Imaging of VX2 Tumors Laura Curiel

11:15-11:30 1569403595 Fundamental Analysis and Ex Vivo Validation of Thermal Lesion Mapping Using HMIFU Gary Hou

11:30-11:45 1569403185 Numerical Simulation of Harmonic Motion Imaging of HIFU Induced Lesion Formation Andrew Draudl

11:45-12:00 1569403641 Acousto-optic (AO) Sensing of HIFU Lesion Formation in Real-Time Robin Cleveland

12:00-1:00 **Lunch**

**Session 1I-Invited---Chair: Elisa Konofagou**

1:00-1:20 Hector Lopez

1:20-1:40 Rob Hekkenberg

1:40-2:00 George Likourezos

**Session 1J-Tumor drug delivery---Chair: Constantin Coussios**

2:00-2:15 1569385215 Low Intensity Ultrasound Substantially Improves the Efficacy of Bisphosphonate Zoledronic Acid in the Breast David Melodelima

2:15-2:30 1569387609 Thermal Ablation by HIFU Using a Toroidal Transducer for the Treatment of Colorectal Liver David Melodelima

2:30-2:45 1569397371 HIFU Treatment of Late Stage Bone and Soft Tissue Malignancies LI Min

2:45-3:00 1569402057 Effects of Ultrasound Sonication with Microbubbles on the Tumor Growth Response in Mouse Hsiao-Ching Tseng

3:00-4:00 **Coffee Break, Exhibits, and Poster session P2-2**

**Session 1K-Tumor treatment and drug delivery---Chair: Gail ter Haar**

4:00-4:15 1569402937 Investigation of Non-Thermal Pulsed HIFU for Cancer Therapy C-M Charlie Ma

4:15-4:30 1569398937 Mechanical Destruction of Pseudomonas Aeruginosa Bio-films by Ultrasound Exposure Jin Xu

4:30-4:45 1569403005 Enhancement of Docetaxel by Pulsed HIFU for Prostate Cancer Therapy - an In-Vivo Study Lili Chen

4:45-5:00 1569403121 Histotripsy and Metastasis: Assessment in a Renal VX-2 Rabbit Tumor Model William W. Roberts

5:00-5:15 1569403563 SonoKnife: Feasibility of Line-Focused Ultrasound for Thermal Ablation of Advanced Head and Neck Cancers Eduardo G. Moros

5:15-5:30 1569397171 Overcoming Biological Barriers with Ultrasound Natasha Rapoport

7:00-10:00 **Dinner Cruise around Manhattan**

ISTU211 Summary Program

**Tuesday, April 12 Westside Ballroom South**

7:00 -- **Registration**

**Session 2F-Cavitation and Microbubble studies---Chair: Michael Bailey**

- 8:00-8:15 1569402851 Real-Time Two-Dimensional Imaging of Microbubble Cavitation Francois Vignon  
8:15-8:30 1569402579 Monitoring of HIFU Ablation in Ex Vivo Ox Liver by Passive Acoustic Mapping Carl Jensen  
8:30-8:45 1569401897 A Model of an Oscillating Microbubble Inside a Microvessel Nazanin Hosseinkhah  
8:45-9:00 1569403619 The Bubble-dependent Mechanism of FUS-induced Blood-Brain Barrier Opening in Mice in Vivo Yao-Sheng Tung

**Session 2G-Cavitation and Microbubble studies---Chair: Tom Matula**

- 9:00-9:15 1569403405 Spatio-Temporal Mapping and Characterization of Acoustic Cavitation Seeded by Flowing Ultrasound Contrast Agents James J Choi  
9:15-9:30 1569403649 Measurements of Cavitation Thresholds and the Probability of Cavitation Under Short-Pulse HIFU At Four Frequencies Stephane Labouret  
9:30-9:45 1569402913 Statistical Study on Bubble Nucleation in Biological Tissues Jerome Gateau  
9:45-10:00 1569402511 Role of Cavitation in High Intensity Focused Ultrasound (HIFU) Induced Damage of Isolated Blood Vessels Anna Tokarczyk

10:00-11:00 **Coffee Break, Exhibits, and Poster session P2-1**

**Session 2H-Physical studies---Chair: Robin Cleveland**

- 11:00-11:15 1569403119 The Role of Nonlinear Propagation Effects in Ablation of Soft Tissue Behind the Rib Cage Using a HIFU Phased Array Vera A. Khokhlova  
11:15-11:30 1569402945 The Bilayer Sonophore Eitan Kimmel  
11:30-11:45 1569403455 Fourier Continuation Methods for High Intensity Focused Ultrasound Nathan Albin  
11:45-12:00 1569405387 Numerical Study of Nonlinear, Transcranial Focused Ultrasound Wave Propagation for Blood-Brain Barrier (BBB) Opening Noe Jimenez

12:00-1:00 **Lunch**

**Session 2I-Transducers and devices---Chair: Shin Umemura**

- 1:00-1:15 1569402717 Large Aperture Transducer Designed for MR-HIFU Treatment of Breast Tumors Charles Mougnot  
1:15-1:30 1569402979 Acoustic Characterization of Multi-Element, Dual-Frequency Transducers for High-Intensity Contact Ultrasound Therapy Mathieu Burtnyk  
1:30-1:45 1569401307 Comparison of Hydrophone Phase Response Obtained Via Time Delay Spectroscopy and Hilbert Transformation Keith A. Wear  
1:45-2:00 1569403355 Multiple-focus, Multiple-frequency Phased Array Patterns for Therapeutic Ultrasound John R Ballard

**Session 2J-Sonothrombolysis and hemostasis---Chair: Larry Crum**

- 2:00-2:15 1569401745 Successful Microbubble Sonothrombolysis Without tPA in Rabbits William C Culp  
2:15-2:30 1569403495 Optimizing Ultrasound-Microbubble Sonothrombolysis in Vitro to Minimize Tissue Plasminogen Activator (tPA) Dose Michael J. Borrelli  
2:30-2:45 1569403667 Acoustic Hemostasis of Porcine Superficial Femoral Artery: Simulation and In-vivo Experimental Studies Xiaozheng Zeng  
2:45-3:00 1569402969 Tissue Emulsification Through Ultrasonic Atomization Oleg A. Sapozhnikov

3:00-4:00 **Coffee Break, Exhibits, and Poster session P2-2**

**Session 2K-Gene/cell therapy---Chair: Chris Diedrich**

- 4:00-4:15 1569387195 Towards Developing a Plant-Based Experimental Model for Sonoporation-Mediated Gene Therapy: Bioeffects Analysis Qin Peng  
4:15-4:30 1569402601 The Use of mRNA-loaded Microbubbles for Transfection of Dendritic Cells Heleen Dewitte  
4:30-4:45 1569401717 Ultrasonic Microbubble-mediated Angiogenic Gene Delivery Into Endothelial Progenitor Cells Cheng-Huang Su  
4:45-5:00 1569403433 Low-Intensity Pulsed Ultrasound Enhances Differentiation of Osteolineage-Committed Human Mesenchymal Stem Cells Lawrence Poor  
5:00-5:15 1569403149 Mechanism of Intracellular Delivery of Nanoparticles Using Ultrasound Mercy Afadzi  
5:15-5:30 1569400849 Skeletal Muscle Transfection Via the Ultrasound-Microbubble-Targeted Delivery of PEG-PEI Nanocarriers Caitlin W Burke

7:00-10:00 **Dinner Cruise around Manhattan**

ISTU211 Summary Program

**Wednesday, April 13 Westside Ballroom North**

7:00 -- **Registration**

**Session 1L-Invited---Chair: Narendra Sanghvi**

8:00-8:20 Gina Hesley

8:20-8:40 John Hazle

8:40-9:00 Chris Comstock

**Session 1M-Breast studies---Chair: Brian Fowlkes**

9:00-9:15 1569401711 Anterior Vertical Shift in MRgFUS of Breast Cancer: A Relation Between the Acoustic Energy and the Tissue Interface Hidemi Furusawa

9:15-9:30 1569403195 Induction of an Immune Response to Breast Cancer with MRg-FUS Tumor Ablation in a Mouse Model Navid Farr

9:30-9:45 1569403395 Treatment of Invasive Breast Cancer: Initial Clinical Experience Using HIFU Therapy with 3T MR Guidance Federica Pediconi

9:45-10:00 1569403567 Ultrasound Thermal Ablation System and Methods for Treatment of Breast Cancer Oliver Kripfgans

**Coffee Break, Exhibits, and Plenary 2**

10:00-10:05 Short Business Meeting

10:05-10:20 Smith, Lizzi, and Fry Awards announced

10:20-10:30 Next meeting Chair presentation

10:30-10:45 Shin Umemura (2010 Fry awardee)

10:45-11:00 Cyril Lafon (2010 Lizzi awardee)

**Session 1N-Clinical studies---Chair: Joo Ha Hwang**

11:00-11:15 1569402153 A Clinical Study of Adenomyosis Ablation by High Intensity Focused Ultrasound Combining with Iodized Oil Yanbing Xiao

11:15-11:30 1569402245 High Intensity Focused Ultrasound Ablation of Children Hepatoblastoma: Preliminary Clinical Experience Shan Wang

11:30-11:45 1569402551 Clinical Study of High Intensity Focused Ultrasound Ablation for Advanced Pancreatic Carcinoma Jing Li

11:45-12:00 1569402377 Noninvasive Treatment of Prostate Cancer: 1st Clinical Experience, 3T MRgFUS in Patients with Monofocal Disease Alessandro Napoli

12:00-1:00 **Lunch**

1:00-- **Local trips - unconfirmed**

ISTU211 Summary Program

**Wednesday, April 13 Westside Ballroom South**

7:00 -- **Registration**

**Session 2L-Emerging applications---Chair: Sham Sokka**

8:00-8:15 1569403591 Successful Treatment of Childhood Neuroblastoma with High Intensity Focused Ultrasound (HIFU) Marta Garcia-Bernal  
8:15-8:30 1569402841 Efficacy of MRgFUS for Chronic Low Back Pain Originating in the Facet Joints in Elderly Patients Motohiro Kawasaki  
8:30-8:45 1569401305 Artificial Cavitation Nuclei to Enhance HIFU-induced Mechanical Damage to Connective Tissue Michael Molinari  
8:45-9:00 1569398937 Mechanical Destruction of Pseudomonas Aeruginosa Bio-films by Ultrasound Exposure Jin Xu

**Session 2M-Prostate clinical studies---Chair: Jean-Yves Chapelon**

9:00-9:15 1569384795 Ten-year Biochemical Disease-Free Survival Rates After HIFU for Localized Prostate Cancer Toyooki Uchida  
9:15-9:30 1569386961 High-intensity Focused Ultrasound as Salvage Therapy for Patients with Recurrent Prostate Cancer After Radiation Sunao Shoj  
9:30-9:45 1569399281 Locally Recurrent Prostate Cancer After Initial Radiation Therapy: Early Salvage-HIFU Improves Oncologic Outcomes Albert Gelet  
9:45-10:00 1569400323 Oncological Outcomes of High-intensity Focused Ultrasound for Localized Prostate Cancer in 1098 Consecutive Patients Albert Gelet

**Coffee Break, Exhibits, and Plenary 2 (Westside Ballroom North)**

10:00-10:05  
10:05-10:20  
10:20-10:30  
10:30-10:45  
10:45-11:00

**Session 2N-Clinical studies---Chair: Feng Wu**

11:00-11:15 1569401297 Evaluation of Efficacy and Safety of Focused Ultrasound Treatment of 4315 Patients with Chronic Cervicitis Chengzhi Li  
11:15-11:30 1569402107 Feasibility of High Intensity Focused Ultrasound Ablation for Patients with Hepatocellular Carcinoma Close to the Heart Chengbing Jin  
11:30-11:45 1569402185 Eligibility and Accessibility of Ultrasound-guided HIFU for the Treatment of Uterine Fibroids in Two New HIFU Centers Kequan Li  
11:45-12:00 1569403617 Clinical Development of a Surgical Oncology HIFU Unit in a University Hospital in Spain: Dynamics Joan Vidal-Jove

12:00-1:00 **Lunch**

1:00-- **Local trips - unconfirmed**

**ISTU Summary Program Monday morning, April 11 Poster session P1-1**

- 1569397573 Ultrasound-guided High-Intensity Focused Ultrasound (USgHIFU) in Advanced Pancreatic Disease Gianluigi Orgera  
1569401291 The Focused Ultrasound on Persistent Infection of HR-HPV: The Preliminary Mechanism Study Chengzhi Li  
1569401303 Effects of Focused Ultrasound Near Field on Proliferation of Endothelial Cell in Vitro Chengzhi Li  
1569401743 Practical Limits of the Parabolic Approximation for Focused Ultrasound Beams Joshua Soneson  
1569401983 Enhanced Cytotoxic Effect of Cisplatin Using Diagnostic Ultrasound and Microbubbles in Vitro Noboru Sasaki  
1569402193 Study of Extracorporeal High Intensity Focused Ultrasound Associating with Laparoscopy in the Treatment of Patients with Breast Cancer Fei Huang  
1569402211 Effect of High Intensity Focused Ultrasound on the Immunity of Children Solid Tumors Shan Wang  
1569402225 A Study of Different Doses of High Intensity Focused Ultrasound and the Dose-Effect Relationship on VX2 Rabbit Liver Tumor Ablation Jianzhong Zou  
1569402497 Microbubble and Ultrasound Enhancement of Radiation-Induced Tumour Cell Death in Vivo Gregory Czarnota  
1569402659 Sonosensitive Nanoparticles for Controlled Instigation of Cavitation and Drug Delivery by Ultrasound Sarah Wagstaffe  
1569402689 Planning and Evaluation of High-Intensity Focused Ultrasound Therapy Assisted by Three-Dimensional Ultrasound Kota Yamada  
1569403009 Design and Characterization of Transurethral Ultrasound Transducer for MR-guided Prostate Ablation Balasundar Raju  
1569403093 Cavitation Generator Combining Two Focused Ultrasound Transducers to Produce a Continuous Thin Spot of Inertial Cavitation Jean-Louis Mestas  
1569403181 T-cell Mediated Immune Response to HIFU Emulsification of Murine B16 Melanoma Tatiana Khokhlova  
1569403217 Multi Linear Regression Model of the Therapeutic Dose for the Treatment of Uterine Fibroids by Ultrasound Guided Focused Ultrasound Ablation Jinyun Chen  
1569403347 Sonication Accuracy of Volumetric MR-HIFU Ablation for the Treatment of Symptomatic Uterine Fibroids; MR-thermometry Analysis Young-sun Kim  
1569403359 Cavitation Inception and Growth by Dual-Frequency Excitation Method Shin Yoshizawa  
1569403401 Pain Palliation of Bone Metastasis: Initial Clinical Experience Using HIFU Therapy with 3T Magnetic Resonance Imaging Guidance Carlo Catalano  
1569403475 Study on Effects of Low-intensity Pulsed Ultrasound on Proliferation of Bone Mesenchymal Stem Cells Yan Wang  
1569403635 Three-dimensional Transcranial Focusing Using Two-Dimensional Skull Information Yun Jing  
1569403683 Pulsed HIFU Targeted Delivery of MR Contrast Agent in a Rabbit Muscle Model Using the MRI-guided ExAblate System Brian E. O'Neill  
1569403689 Characterization of Calcifications in Ex-Vivo Swine Brain Using MR-ARFI and SWI Rachelle Bitton  
1569404117 Numerical Simulation of Bubble Jetting and Tissue Deformation in Response to Ultrasound Excitation Quan Zhang  
1569412475 Development of New HIFU Transducer for Treatment of Lower Extremity Varicose Veins Kiyoshi Yoshinaka
- students:**
- 1569387049 Acoustic and Thermal Characterisation of Fresh Tissue Lise Retat  
1569387655 MR Compatible Cavitation Detection Using a Fabry-Perot Fibre-Optic Hydrophone Victoria Bull  
1569396785 Acoustically Accessible Window Determination for Ultrasound Mediated Treatment of Glycogen Storage Disease Type Ia Patients Shutao Wang  
1569397843 Simultaneous Measurements of Thermo-Physical Properties of Egg White Phantoms for HIFU by Using the Step-Wise Transient Plane Source Technique Jing Gao  
1569398799 Transcranial Threshold of Inertial Cavitation Induced by Diagnostic Ultrasound and Microbubbles Jinjin Liu  
1569398871 The Advantages of Small-Size Focus Mode in Ultrasound Surgery Dehui Li  
1569398889 The Effect of Pre-Exposure with Non-Ablating Focused Ultrasound on the HIFU Ablation Efficiency of Rabbit Muscle: Preliminary Results Yan Wang  
1569399229 Predicting the Optimal Estimated Pressure of BBB Disruption From the Pressure Attenuation of Skull Thickness Chun-Hsein Chang  
1569400845 Covalently Linking Poly(Lactic-co-Glycolic Acid) Nanoparticles to Microbubbles Improves Their Ultrasound-Targeted Delivery to Skeletal Muscle Caitlin W. Burke  
1569400847 Composite Drug-Delivery Agents Comprised of 5FU-Bearing Controlled-Release Nanoparticles Bonded to Microbubbles Inhibit Glioma Growth Caitlin W. Burke  
1569400901 Dual-modality Image Guided High Intensity Focused Ultrasound Device Design for Prostate Cancer: A Numerical Study Dexter Hobson  
1569400999 The Control of Bubble-Enhanced Ultrasound Thermal Effects with the Presence of a Phase-Shift Nanoemulsion Peng Zhang  
1569401091 Effect of Oxytocin on High Intensity Focused Ultrasound Ablation of Uterine Fibroids Huang  
1569401287 Passive Acoustic Mapping of HIFU-induced Mechanical Disruption of Collagenous Connective Tissue Michael Molinari  
1569401399 Quantitative Ultrasound Assessment of Thermal Damage in Excised Liver Jeremy Kemmerer  
1569401685 Microbubble Mediated Sonoporation for Gene Transfection: Difference Between Cells in Suspension and Attachment Status Yiwei Zhang  
1569401755 Nonlinear Effects in the Radiation Force Generated by Amplitude-Modulated Focused Beams Nuria González  
1569401819 Development of Cylindrical Ultrasonic Transducers for MRI-Guided and Monitored Cardiac Ablation Mathew A. F. Carias  
1569401837 3D Volume MR Temperature Mapping for HIFU Heating Trajectory Comparisons Nick Todd  
1569401869 Cavitation Monitoring and Passive Beamforming Using a Hemispherical Random Sparse Array Meaghan A. O'Reilly  
1569401873 Influence of Animal Mass on Ultrasound Attenuation Through Rat Parietal Bone Aidan Muller  
1569401961 Selective Detection and 3D Visualization of Targeted cRGD and VEGFR2 Contrast Agents in Vivo Xiaowen Hu  
1569401975 Respiratory Motion Compensation by Coagulated Lesion Tracking for US-guided Robotic HIFU System Joonho Seo

**ISTU Summary Program Monday afternoon, April 11 Poster session P1-2**

**STUDENT COMPETITION**

- 1569387509 Temperature Mapping for Ultrasound Scanner Using Backscattered Changes Jeremy Chenot
- 1569398937 Mechanical Destruction of Pseudomonas Aeruginosa Bio-films by Ultrasound Exposure Jin Xu
- 1569400849 Skeletal Muscle Transfection Via the Ultrasound-Microbubble-Targeted Delivery of Polyethyleneglycol PEG-PEI Nanocarriers Caitlin W. Burke
- 1569401245 Histological Evaluation of HIFU with Lower- Intensity Focused Ultrasound Pre-Exposure on the Treatment of Rabbit VX2 Liver Tumors Hairong Zou
- 1569401299 Mechanisms for Vascular Bioeffects Induced by Ultrasound-activated Microbubbles Hong Chen
- 1569401305 Artificial Cavitation Nuclei to Enhance HIFU-induced Mechanical Damage to Connective Tissue Michael Molinari
- 1569401897 A Model of an Oscillating Microbubble Inside a Microvessel and the Mechanical Effects on the Microvessel Wall Nazanin Hosseinkhah
- 1569401983 Enhanced Cytotoxic Effect of Cisplatin Using Diagnostic Ultrasound and Microbubbles in Vitro Noboru Sasaki
- 1569402057 Effects of Ultrasound Sonication with Microbubbles on the Tumor Growth Response in Mouse Ear Model Treated with Liposomal Doxorubicin Hsiao-Ching Tseng
- 1569402597 Precision of a 1MHz MR-guided Ultrasonic Brain Therapy Prototype: Experiments on 12 Fresh Cadavers Laurent Marsac
- 1569402601 The Use of mRNA-loaded Microbubbles for Transfection of Dendritic Cells Heleen Dewitt
- 1569402913 Statistical Study on Bubble Nucleation in Biological Tissues Jerome Gateau
- 1569403075 In Vivo Thermal Ablation Monitoring by Echo Decorrelation Imaging Swetha Subramanian
- 1569403149 Mechanism of Intracellular Delivery of Nanoparticles Using Ultrasound Mercy Afadzi
- 1569403185 Numerical Simulation of Harmonic Motion Imaging of HIFU Induced Lesion Formation Andrew Draudt
- 1569403195 Induction of an Immune Response to Breast Cancer with Magnetic Resonance-Guided Focused Ultrasound Tumor Ablation in a Mouse Model Navid Farr
- 1569403355 Multiple-focus, Multiple-frequency Phased Array Patterns for Therapeutic Ultrasound John R. Ballard
- 1569403433 Low-Intensity Pulsed Ultrasound Enhances Differentiation of Osteolineage-Committed Human Mesenchymal Stem Cells Lawrence Poon
- 1569403489 Ultrasound-enhanced Delivery of Antibiotics Into the Eye Marjan Nabili
- 1569403595 Fundamental Analysis and Ex Vivo Validation of Thermal Lesion Mapping Using Harmonic Motion Imaging for Focused Ultrasound (HMIFU) Gary Hou
- 1569403619 The Bubble-dependent Mechanism of FUS-induced Blood-Brain Barrier Opening in Mice in Vivo Yao-Sheng Tung
- 1569403623 Phase Aberration Correction Method for Focused Ultrasound in the Brain Elena Kaye
- 1569403741 Non-invasive Estimation of Patient-specific Tissue Acoustic Properties for MRgFUS Urvi Vyas
- 1569405387 Numerical Study of Nonlinear, Transcranial Focused Ultrasound Wave Propagation for Blood-Brain Barrier (BBB) Opening Noe Jimenez

**ISTU Summary Program Tuesday morning, April 12 Poster session P2-1**

- 1569368029 Cardiac Optimal Revascularisation Mohamed Faouzi Al-imam  
1569387687 Temperature-dependent Physical Properties of Egg White for HIFU Applications Yunbo Liu  
1569397017 An Ex Vivo Study on Targeted Cell Surgery by High Intensity Focused Ultrasound (HIFU) Junru Wu  
1569397649 Modification of the Edge Wave in Shock Wave Lithotripsy Yufeng Zhou  
1569398735 Focused Ultrasound Exposures with Mechanically Registered Ultrasound Image Guidance for Small Animal Studies Ali Ziadloo  
1569399139 An MR Compatible "smart" Cavitation Detection System for Real Time Remote Assessment of Blood Brain Barrier Disruption Costas Arvanitis  
1569401195 Comparison of Power Measurement Methods in High Intensity Therapeutic Ultrasound (HITU) Fields Klaus V. Jenderka  
1569401213 Measurement of Time-Averaged HITU Power in Burst Mode and Extrapolation to CW Power - Effects of Duty Cycle and Power Level Klaus V. Jenderka  
1569401233 High Intensity Focused Ultrasound Ablation for Liver Tissue Adjacent to Hepatic Portal Vein: An Experimental Study Min He  
1569401485 Robotic High-Intensity Focused Ultrasound (rHIFU) for the Prostate Cancer Treatment Vyacheslav Solovov  
1569401527 HIFU Ablation of Leiomyoma Assisted by Iodized Oil in Vitro Yanbing Xiao  
1569401557 Development of a Non-Invasive Ultrasound Theragnostic System - Technologizing and Digitalization of Medical Diagnostic and Therapeutic Skills Norihiro Koizumi  
1569402031 Perfluorocarbon Droplets Based Multiplex Imaging for Minimally Invasive Differential Diagnosis Rei Asami  
1569402103 Optimal Tissue Perforation Using High Intensity Focused Ultrasound Takashi Mochizuki  
1569402113 Study of a Material for Evaluating the Focusing Characteristics of High Intensity Focused Ultrasound Deping Zeng  
1569402159 Comparison of HIFU Ablation for Uterine Fibroids Between in Patients with Anteversion and in Those with Retroversion of the Uterus Jia He  
1569402165 High Intensity Focused Ultrasound Ablation for Uterine Adenomyosis in Symptom Control Qingrong Wu  
1569402231 Chemically Active Cavitation Induction with Phase Change Nano Droplet Ken-Ichi Kawabata  
1569402333 High Intensity Focused Ultrasound (HIFU) Therapy for Hepatocellular Carcinoma Takatomo Sano  
1569402337 Integration of an Acoustically Transparent Passive Cavitation Detection Array with a Clinical High Intensity Focused Ultrasound Device Jamie R.T. Collin

**students:**

- 1569412805 Ultrasound-Induced Hyperthermia for the Spatio-Temporal Control of Gene Expression in Bone Repair Christopher Wilson  
1569402085 Modeling and Simulation of Lesion Formations with Different Treatment Patterns During Focused Ultrasound Surgery Shan Qiao  
1569402171 Robustness Enhancement for Motion Compensation of a Non-invasive Ultrasound Theragnostic System Funamoto Takakazu  
1569402313 Significant Skin Burns May Occur with the Use of a Water Balloon in HIFU Treatment Robert W. Ritchie  
1569402367 The Effects of Thermal Ablation Using MR-HIFU on Human Cadaver Breast Tissue Laura Merckel  
1569402405 The Ultrasound Fields Estimation Using Uncooled Infrared System Ying Yu  
1569402415 Self-assembled Liposome-Loaded Microbubbles: The Missing Link for Safe and Efficient Ultrasound Guided Drug Delivery Bart Geers  
1569402485 Pregnancy After Ultrasound-Guided High Intensity Focused Ultrasound Therapy for Uterine Fibroids Juan Qin  
1569402541 The Utility of Sparse 2-D Focused Ultrasound Phased Arrays: A Simulation Study Nicholas Ellens  
1569402555 Novel Ultrasound Contrast Agents for Therapeutic and Imaging Applications Ksenia Astafyeva  
1569402557 Detection and Exploitation of Acoustic Cavitation for Enhancement of MR Guided High Intensity Focused Ultrasound Heating in Ex Vivo Liver Delphine Elbes  
1569402603 Ultrasound Gene Delivery to Mesenchymal Stem Cells: Targeting Tumor Therapy Tom Haber  
1569402625 An Ophthalmic HIFU Device Using Reflection of Cylindrical Acoustic Wave by Parabolic Convex Reflector Producing Circular-Focus Beams Thomas Ernest Charrel  
1569402641 Feedback Control for Mild Hyperthermia Treatments Using MR Guided HIFU for Solid Tumor Drug Delivery Ari Partanen  
1569402679 The Impact of Peri-nephric Fat Attenuation on HIFU Ablation for Renal Cancer Robert W. Ritchie  
1569402721 A Boundary Element Approach to Modelling the Scattering of the Field of a Multi-Element Phased Array by Human Ribs Pierre Gelat  
1569402857 Determination of Cytotoxic Thermal Dose During HIFU Ablation Sacha D. Nandlall  
1569402897 Magnetic Microbubbles for in Vivo Manipulation: Development, Characterisation and Preliminary Application in Vivo Eleanor P.J. Stride  
1569402917 Effects of Microvascular Perfusion on Focused Ultrasound Induced Hyperthermia Shutao Wang  
1569403021 Real-time HIFU Ablation Imaging in Cardiac Tissue Using High-Frequency B-mode Ultrasound Imaging Madhu Sudhan Reddy Gudur  
1569403061 Pelvic Bone Heating with MRI-controlled Transurethral Ultrasound Therapy for Prostate Cancer: Results in Gel Phantoms Xitij Patel  
1569403065 Predictors of T2-weighted MR Images At HIFU Ablation for Uterine Fibroids Wenpeng Zhao  
1569403101 Optically Triggered Solid State Driver for Shock Wave Therapy Alexander P. Duryea  
1569403265 Mapping 2D Temperature Simulation with Thermal Strain Thermometry Using a Dual-function Ultrasound Linear Array Chun-Yen Lai  
1569403289 The Efficacy and Safety of Focused Ultrasound Ablation for Type I and II Submucosal Uterine Fibroids: The Mid-Term Results Ting Wang  
1569403331 Nonlinear Modeling of Pulsed and CW HIFU Beams for Dual-mode Ultrasound Arrays Mohamed Almekkawy  
1569403343 Continuous Monitoring of Pulsed HIFU Beams Using Dual-mode Ultrasound Array Systems Andrew Casper  
1569430501 Exploration of Focused Ultrasound as a Tool for Affecting Local Tissue Properties in Articular Cartilage Engineering Adam Nover

**ISTU Summary Program Tuesday afternoon April 12 Poster session P2-2**

1569403353 Real-time Monitoring of Thermal and Mechanical Tissue Response to Modulated Phased-array HIFU Beams in Vivo Dalong Liu  
1569402397 An Ex Vivo Study of the Relationship Between Acoustic Power and the Exposure Time Needed to Cause Coagulative Necrosis Faqi Li  
1569402505 Numerical Study of Cavitation Threshold by Use of Bifrequency Excitation Jean-Christophe Béra  
1569402757 The Influence of Fluid Compressibility and Viscosity on the Stability of Multi-Bubble Cavitation David Sinden  
1569402911 Temperature Change Due to Oscillating Bubbles Within Large Vessels Under Acoustic Exposure Shaoying Liu  
1569402991 Validation of Tissue Change Monitoring on the Sonablate 500 During HIFU Treatment of Prostate Cancer with Real-time Thermometry Wo-Hsing Chen  
1569403091 MRI-Based Heterogeneity Correction for Large Aperture HIFU Transducers Charles Mougnot  
1569403137 Enhancing Tumor Drug Delivery and Therapy Using Microbubbles and Ultrasound Umar Iqbal  
1569403205 UDP Glycosyltransferase 8 (UGT8) Involvement in a Novel Cancer Therapy That Employs Ultrasound and Microbubbles Azza Al-Mahrouki  
1569403253 Estrogen Receptor and Progesterone Receptor Expressions At the Edge of the Targeted Region of Uterus Fibroids Ablated by Acoustic Power Xuemei He  
1569403411 Heating Simulations of High-Intensity Focused Ultrasound Ablation in the Presence of Respiratory Liver Motion Erik-Jan Rijkhorst  
1569403415 Characterizing the Heat Propagation of HIFU Ablation in Miniature Pig Model San Chao Hwang  
1569403419 Improved Treatment in a Metastatic Breast Cancer Model in the Rat Brain by Enhancing Delivery of Herceptin Eun-Joo Park  
1569403455 Fourier Continuation Methods for High Intensity Focused Ultrasound Nathan Albin  
1569403545 Pulsed-FUS Enhancement of Doxorubicin Uptake in Prostate Cancer Xiaoming Chen  
1569403551 Combination of Pulsed HIFU and a Rose Bengal Derivative Treatment of a Breast Cancer Model Yoo-Shin Kim  
1569403559 Near-Field Heating of Volumetric MR-HIFU Hyperthermia Max O. Köhler  
1569403709 Time Reversal Ultrasound Focusing to a Predefined Area Using a Set of Impulse Responses Yegor D. Sinenkov  
1569403743 Transcranial Doppler Ultrasound and Arterial Blood Pressure Can Usefully Predict Cerebral Perfusion Pressure Pierre Mourac  
1569403805 Dual Frequency Imaging and HIFU Bi-laminar Transducer Using Acoustic Isolation Layer for Application of Endoscopic Surgery Takashi Azuma  
1569404489 Microbubble Potentiated Collagenase Therapy of in Vivo Chronic Total Occlusions David Goertz  
1569411097 Pad Printed Thick-Film Transducers for Focused, High-Frequency, High-Power Applications Wanda W. Wolny  
1569412805 Ultrasound-Induced Hyperthermia for the Spatio-Temporal Control of Gene Expression in Bone Repair Christopher Wilson  
1569413407 Aesthetic Ultrasound Therapy Peter G. Barthe

**students:**

1569403361 Real-time Monitoring and Compensation of Breast Cancer on Ultrasound Image for Ultrasound Guided HIFU Irradiation Makoto Tomida  
1569403437 Suppression of HeLa Cancer Cell Proliferation In-Vitro Through Sonoporation Xian Chen  
1569403485 Histologic Analysis of Rabbit Liver Cancer Treated by Bulk Ultrasound Ablation Chandrapriya Karunakaran  
1569403503 Effect of Spatial Resolution on Magnetic Resonance Imaging Guided High Intensity Focused Ultrasound (MR-HIFU) Temperature Measurement Jiming Zhang  
1569403521 Focusing Through the Rib Cage for MR-guided Transcostal FUS Jing Gao  
1569403565 Transurethral MR-guided High-intensity Ultrasound System for Focal Ablation of Prostate Cancer Hari Trivedi  
1569403583 Investigations Into the Use of MRI-controlled Focused Ultrasound for Hyperthermia-Mediated Drug Delivery Robert Staruch  
1569403613 The Utilization of the Bubble Pressure Dependent Harmonic Resonance Frequency for Enhanced Heating During HIFU Treatments Amin Jafari Sojahrood  
1569403639 HIFU Treatment Time Reduction Through Focal Zone Size and Spacing Selection Joshua Coon  
1569403657 Targeted Gene Delivery by Sonoporation in Crohn's Disease Jose Tlaxca  
1569403675 Pressure and Microbubble Size Dependence Study of Focused Ultrasound-Induced Blood-Brain Barrier's Opening Reversibility in Vivo Geshthimani Samiotaki  
1569403679 Infrared Thermography for Noninvasive Real-Time Monitoring of HIFU Ablation in Cardiac Tissue Yi-Sing Hsiao  
1569403691 The Effect of Pulsed HIFU on the Porosity and Permeability of Collagen Gels: An in Vitro Study Geetha Vipulanandan  
1569403695 Comparison of SAR Estimation Techniques in MRgHIFU Christopher Dillon  
1569403701 Sparse Linear Array Design with the Matrix Pencil Method Kirk Sales  
1569403705 Using FOCUS to Determine the Radiation Impedance for Calculations of Power Radiated by Rectangular Transducers Matthew Jennings  
1569403735 Realtime Monitoring of Tissue Viability During HIU Treatment with DWI Juan Plata  
1569403745 Real Time Respiration Based Steering for High Intensity Focused Ultrasound in the Liver Andrew B. Holbrook  
1569404461 An MR-compatible Phantom for Evaluating the Propagation of High Intensity Focused Ultrasound Through the Skull Venedictos HadjiSavvas  
1569412113 Quasi-Static Elastography and Its Application in Investigation of HIFU Induced Tissue Lesions Bin Wang  
1569413211 Applicator for In-Vitro Ultrasound-activated Targeted Drug Delivery Bjoern Gerold  
1569413279 Optimization of the Shear Stress Induced by Ultrasonically-Stimulated Oscillating Microbubbles: A Theoretical Investigation Amin Jafari Sojahrood