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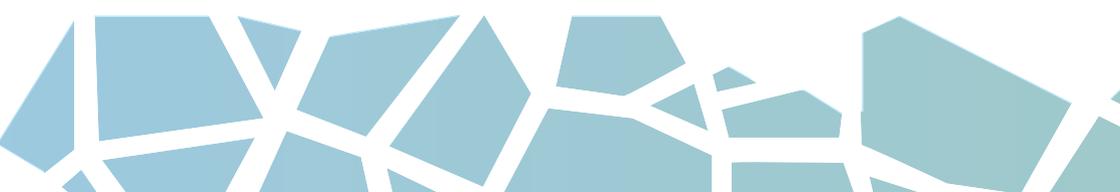
ISTU

Joo Ha Hwang, President

Kim Butts Pauly, Secretary General

Jean-François Aubry

Gail ter Haar



THURSDAY, JUNE 13TH

07:30 - 08:00 EDUCATION: NEUROLOGICAL DISEASES

MRgFUS for the treatment of neurological disorders: A clinical update -
Raúl Martínez

08:00 - 08:10 WELCOME

Joo Ha Hwang, Andreas Melzer, Joan Vidal-Jove

08:10 - 09:40 FRY / LIZZI / PIONEER AWARD SESSION

CHAIRS: *Jean-François Aubry, Lawrence Crum, Joo Ha Hwang*

FRY AWARD, INVITED TALK:

08:10 - 08:35 Towards an increased clinical impact of focused ultrasound - *Chrit Moonen*

LIZZI AWARD, INVITED TALKS:

08:35 - 09:00 Exploding droplets and singing bubbles in therapeutic ultrasound -
Kevin Haworth

09:00 - 09:25 A healthy future for focal conformal therapeutic ultrasound -
W. Apoutou N'Djin

PIONEER AWARD:

09:25 - 09:40 Presentation of the ISTU/EUFUS Pioneer Award winner Leonid Gavrilov

09:40 - 10:45 PHYSICS AND MODELLING

CHAIRS: *Aki Pulkkinen, Bradley Treeby*

INVITED TALKS:

09:40 - 09:52 What can physics and modelling do for neurosurgeons and neurologists? -
Jean François Aubry

09:52 - 10:04 MRI-Guided transurethral ultrasound ablation of prostate tissue: clinical
impact of intensified treatment parameters - *Robert Staruch*

SPEED TALKS:

10:04 - 10:09 Design and simulation of a phased array for ultrasound therapy in the
spinal cord - *Rui Xu*

10:09 - 10:14 New design of a fully populated random array for treating deep-seated
tumors - *Pavel Rosnitskiy*

10:14 - 10:19 Exploring the role of laser and ultrasound on gold-loaded droplet
vaporization - *Yanye Yang*

10:19 - 10:24 Experimental validation of models of ultrasound propagation - *Elly Martin*

10:24 - 10:29 OptimUS: A fast multi-domain full wave solver for therapeutic ultrasound
treatment planning - *Pierre Gelat*

10:29 - 10:34 Computational modeling of tissue-selective liver ablation in histotripsy -
Lauren Mancía

10:34 - 10:39 Scattering from microbubble clouds: A fast multipole model with
experimental validation - *Gregory Clement*

10:39 - 10:44 Improved numerical method for the design of 3D printed acoustic lenses for the
correction of transcranial focused ultrasound aberrations - *Marcelino Ferri Garcia*

10:45 - 11:15 COFFEE BREAK

11:15 - 12:20 HARDWARE

CHAIRS: *Amanda Beserra, Cyril Lafon*

INVITED TALKS:

11:15 - 11:27 Transrectal High-Intensity Focused Ultrasound as local therapy of posterior
deep invasive endometriosis - *Gil Dubernard*

11:27 - 11:39 Design and fabrication of therapy transducers to produce mechanical
bioeffects - *Adam Maxwell*

SPEED TALKS:

11:39 - 11:44 A new therapeutic device for transthoracic treatment of
calcified aortic stenosis - *Wojciech Kwiecinski*

11:44 - 11:49 Multichannel system for translational research in high intensity focused
ultrasound - *Steffen Tretbar*

11:49 - 11:54 Preliminary investigations of a deployable concentric ring ultrasound
applicator for endoluminal and laparoscopic intervention - *Mathew Adams*

11:54 - 11:59 A prototype system for boiling histotripsy in abdominal targets comprising
a 256-element spiral array combined with a power-enhanced Verasonics
engine - *Vera Khokhlova*

11:59 - 12:04 CMUT prototype for endocavitary ultrasound-guided HIFU therapy -
W. Apoutou N'Djin

12:04 - 12:09 A device for treating chronic total occlusions with catheter-based
ultrasound and collagenase - *David Goertz*

12:09 - 12:14 Improving image quality in transcranial magnetic resonance guided
focused ultrasound using a copper screen - *Rock Hadley*

12:14 - 12:19 Preclinical X-Ray/PET-guided focused ultrasound system for neuro and
abdominal applications - *Amanda Beserra*

12:20 - 12:25 INDUSTRY PITCH

Insightec

12:25 - 13:50 LUNCH & POSTER SESSION

13:50 - 14:55 MONITORING AND FEEDBACK

CHAIRS: *Elodie Cao, Shin-ichiro Umemura*

INVITED TALKS:

13:50 - 14:02 Volumetric MR thermometry for neuro applications using
multiple 3D slabs and saturation bands - *Henrik Odeen*

14:02 - 14:14 Focal therapy with high-intensity focused ultrasound for the localized
prostate cancer based on the localization with MRI-TRUS fusion image-
guided biopsy: 1-year prospective study - *Sunao Shoji*

THURSDAY, JUNE 13TH

SPEED TALKS:

- 14:14 - 14:19 The use of shockwave exposures for enhancing volumetric thermal ablation of *ex vivo* bovine liver on a clinical MRI-guided HIFU system - *Oleg Sapozhnikov*
- 14:19 - 14:24 Frequency-domain passive cavitation imaging with circular coherence factor - *Nuria G. Salido*
- 14:24 - 14:29 Ventricular arrhythmias characterization with high-resolution electromechanical wave imaging on isolated working heart model - *Jade Robert*
- 14:29 - 14:34 Improved VIM targeting with DTI and Synthesized MPRAGE Images in MRgFUS - *Jiachen Zhuo*
- 14:34 - 14:39 Improving *in situ* acoustic intensity estimation by augmenting MR acoustic radiation force imaging with MR elastography - *Ningrui Li*
- 14:39 - 14:44 Photoacoustic imaging of HIFU-induced tissue injuries - *Tri Vu*
- 14:44 - 14:49 Ultrasound-based targeting and displacement imaging of the median nerve for neuromodulation in healthy human subjects - *Mark Burgess*
- 14:49 - 14:54 Monitoring HIFU ablations in real time using simultaneous MR thermometry and elastography - *Jonathan Vappou*
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14:55 - 16:00 NONTHERMAL MECHANISMS

CHAIRS: *Ki Joo Pahk, Oleg Sapozhnikov*

INVITED TALKS:

- 14:55 - 15:07 Physical mechanisms of non-thermal treatment approaches in HIFU - *Tatiana Khokhlova*
- 15:07 - 15:19 Histotripsy for cancer and neurological applications - *Zhen Xu*
- SPEED TALKS:
- 15:19 - 15:24 Effects of single frequency and dual frequency pulsing on bubble cloud behavior and ablation efficiency in Intrinsic threshold histotripsy - *Connor Edsall*
- 15:24 - 15:29 A preclinical transrectal system for boiling histotripsy prostate ablation - *George Schade*
- 15:29 - 15:34 Cytological and ultrastructural analysis of mechanically liquefied lesions generated using boiling histotripsy in a porcine model of hematoma *ex vivo* - *Ekaterina Ponomarchuk*
- 15:34 - 15:39 Pressure-modulated boiling histotripsy for precise tissue fractionation - *Ki Joo Pahk*
- 15:39 - 15:44 Preclinical performance of histotripsy with the INSIGHTEC Exablate Neuro system - *Matthew Alexander*
- 15:44 - 15:49 The effect of low-intensity ultrasound on cellular motility and morphology - *Nasma Mazzawi*
- 15:49 - 15:54 Histotripsy reduces local tumor progression in an *in vivo* orthotopic rodent liver tumor model - *Tejaswi Worlikar*
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- 15:54 - 15:59 Histological analysis of boiling histotripsy lesions in perfused and non-perfused porcine liver - *Matheus De Andrade*
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16:00 - 16:30 COFFEE BREAK

16:30 - 17:30 DRUG DELIVERY DESIGN / ENGINEERING

CHAIRS: *Dario Carugo, Eleanor Stride*

INVITED TALKS:

- 16:30 - 16:42 Ultrasound targeted microbubble destruction for the targeted chemo-sonodynamic therapy of pancreatic cancer - *John Callan*
- 16:42 - 16:54 Nanoparticle-loaded microbubbles for US-triggered drug delivery: sonoprinting and the multiscale parameter - *Michel Versluis*

SPEED TALKS:

- 16:54 - 16:59 A one-pot process for the preparation of ultrasound-responsive microbubbles loaded with paclitaxel and gemcitabine for the treatment of pancreatic cancer - *Keiran Logan*
- 16:59 - 17:04 Intra-pulse monitoring of microbubble destabilization during ultrasound-induced blood-brain barrier opening - *Anthony Novell*
- 17:04 - 17:09 Optimising the composition of microbubbles to improve the delivery of model drugs *in vitro* and *in vivo* - *Oliver Vince*
- 17:09 - 17:14 The extracellular matrix rigidity alters sonoporation dynamics at cellular level - *Ning Rong*
- 17:14 - 17:19 Developing a magnetic resonance-focused ultrasound system for focused ultrasound-enabled brain tumor liquid biopsy (FUS-LBx) in a porcine model - *Christopher Pacia*
- 17:19 - 17:24 Impact of droplet polydispersity in ultrasound-mediated oxygen scavenging - *Kevin Haworth*
- 17:24 - 17:29 Gas vesicles: biomolecular seeds for targeted inertial cavitation and cell therapy - *Avinoam Bar-Zion*
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17:30 - 17:45 ISTU GENERAL ASSEMBLY

17:45 - 19:15 USgHIFU MEETING: Clinical Application (sponsored session)

- 17:45 - 18:00 HIFU: A technology for all doctors and all patients - *Zhibiao Wang*
- 18:00 - 18:15 HIFU application in China - *Lian Zhang*
- 18:15 - 18:30 Effective and safety of USgHIFU treatment for uterine fibroids: an eleven years' experience - *Jordi Rodríguez*
- 18:30 - 18:45 HIFU Bulgarian experiences on the HIFU treatment of the pancreatic cancer - *Drobomir Dimitrov*
- 18:45 - 19:00 Application of HIFU in Egypt - *Mohamed Hamed*
- 19:00 - 19:15 The current state of clinical and experimental HIFU research in Oxford - *David Cranston*
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19:15 WELCOME RECEPTION COCKTAIL

FRIDAY, JUNE 14TH

07:30 - 08:00 EDUCATION: IMMUNOLOGY

How did immuno-oncology move from humble origins to become the dominant force in cancer therapy? An overview of progress in cancer immunology - *Elizabeth Repasky*

08:00 - 08:30 EDUCATION: BIOEFFECTS OF US

Ultrasound Bioeffects: mechanisms and implications for therapy and safety - *Diane Dalecki*

08:30 - 09:30 HORIZON / JOLESZ LECTURES

CHAIRS: *Alessandro Napoli, Wladyslaw Gedroyc*

INVITED TALKS:

08:30 - 09:00 The Journey of MRI Guided Interventions and FUS - *Morry Blumenfeld*

09:00 - 09:30 Future of Focused Ultrasound - *Neal F. Kassell*

09:30 - 10:30 DRUG DELIVERY

CHAIRS: *Holger Gruell, Michael Gray*

INVITED TALKS:

09:30 - 09:42 Mechanisms underlying sonoporation: How do microbubbles interact with cells? - *Juan Tu*

09:42 - 09:54 MR-HIFU and drug delivery - *Brad Wood*

SPEED TALKS:

09:54 - 09:59 Clinical translation of ultrasound-guided cavitation-enhanced drug delivery: challenges and results in large animal models with a novel handheld array and gas-stabilizing nanoparticles - *Calum Crake*

09:59 - 10:04 Enhancement of drug delivery to tumor tissue by the combination of new lipid bubbles and ultrasound - *Kazuo Maruyama*

10:04 - 10:09 Focused Ultrasound mediated Blood-Spinal Cord Barrier Opening (BSCO) using short burst, phase keying exposures - *Stecia-Marie Fletcher*

10:09 - 10:14 Inertial cavitation activity induced by nonlinear HIFU waves: implications for drug delivery - *Tatiana Khokhlova*

10:14 - 10:19 Localized drug delivery by MR-guided focused ultrasound with low temperature sensitive liposomes - *Chulyong Kim*

10:19 - 10:24 Targeted chemo-sonodynamic therapy of breast cancer using ultrasound responsive microbubbles as delivery vehicle - *Dean Nicholas*

10:24 - 10:29 Microbubble-mediated intracellular drug delivery for recurrent urine infections - *Eleanor Stride*

10:30 - 11:00 COFFEE BREAK

11:00 - 12:00 IMMUNOTHERAPY

CHAIRS: *Natasha Sheybani, Tatiana Khokhlova*

INVITED TALKS:

11:00 - 11:12 Why therapeutic ultrasound could be an outstanding choice for combination with immunotherapy: what are the barriers to success? - *Elizabeth Repasky*

11:12 - 11:24 *In situ* tumor vaccines - *Chandan Guha*

SPEED TALKS:

11:24 - 11:29 A preclinical study of the combined effects of pulsed focused ultrasound and immune checkpoint inhibitors in pancreatic cancer - *Petros Mouratidis*

11:29 - 11:34 Can focused ultrasound modulate and repolarized myeloid cells in metastatic breast cancer? - *Natasha Sheybani*

11:34 - 11:39 Immune cell modulation of pulsed focused ultrasound in murine melanoma and breast cancer models - *Joseph Frank*

11:39 - 11:44 Transcriptomic profiling of thermally ablated b16f10 tumors reveals temporal variability in immunogenicity - *Alexander Mathew*

11:44 - 11:49 Blood brain/tumor barrier disruption with MR image-guided FUS elicits marked shifts in tumor-immune profile in murine glioblastoma - *Natasha Sheybani*

11:49 - 11:54 Histotripsy induced immunomodulation - *Ryan Hubbard*

11:54 - 11:59 Investigation of the local and systemic immune response to histotripsy ablation of breast cancer in a mouse model - *Alissa Hendricks*

12:00 - 13:30 LUNCH & POSTER SESSION

13:30 - 14:15 THERAPY ULTRASOUND PLUS

CHAIRS: *Gail ter Haar, Lisa Landgraf*

INVITED TALKS:

13:30 - 13:42 Analysis, quantification and modelling of biological effects induced by combination treatments of radiation and hyperthermia at cell (population) level - *Sarah Brüningk*

13:42 - 13:54 How to sell "MR-HIFU induced hyperthermia" as an adjuvant treatment - *Edwin Heijman*

SPEED TALKS:

13:54 - 13:59 HIFU thermotherapy enhancement in *ex-vivo* pig kidneys using a new class of endovascular sono-sensitizers - *Orane Lorton*

FRIDAY, JUNE 14TH

- 13:59 - 14:04 Randomized Phase II Multicenter Clinical trial of ultrasound hyperthermia combined with chemotherapy in oral cancer - *Wei Guo*
- 14:04 - 14:09 Controlled bubble-enhanced heating with added microbubbles - *Mike Averkiou*
- 14:09 - 14:14 The enhanced HIFU-induced thermal effect via magnetic ultrasound contrast agent microbubbles - *Dongxin Yang*

14:15 - 15:20 NEUROMODULATION

CHAIRS: *Lennart Verhagen, Wynn Legon*

INVITED TALKS:

- 14:15 - 14:27 Central and peripheral modulation in mice and humans using focused ultrasound - *Elisa Konofagou*
- 14:27 - 14:39 Modulation of neural activity in deep brain circuits - *Jan Kubanek*

SPEED TALKS:

- 14:39 - 14:44 Transcranial focused ultrasound localization and brain function monitoring in monkey at 3T MRI - *Xiaojing Long*
- 14:44 - 14:49 MR-Guided thalamic transcranial focused ultrasound modulates resting-state cortical activity in healthy humans - *Joshua Cain*
- 14:49 - 14:54 Modulating deep brain activity and behaviour in primates using focused transcranial ultrasound stimulation - *Lennart Verhagen*
- 14:54 - 14:59 Hearing ultrasound - transcranial ultrasonic neuromodulation elicits an auditory effect in humans - *Robin Cleveland*
- 14:59 - 15:04 Optical observation of calcium signaling in response to fus neuromodulation - *Thomas Manuel*
- 15:04 - 15:09 Transcranial focused Ultrasound neuromodulation of the visual system in a large animal (Sheep) - *Morteza Mohammad*
- 15:09 - 15:14 Thermal safety of transcranial ultrasound stimulation in human: retrospective numerical estimation of thermal rise in cortical and subcortical stimulation setups - *David Attali*
- 15:14 - 15:19 Influence of acoustic parameters on the success rate of neurostimulation of an in vivo invertebrate nervous model - *Iván Suárez Castellanos*

15:20 - 15:50 COFFEE BREAK

15:50 - 17:00 BRAIN-PRECLINICAL

CHAIRS: *Elisa Konofagou, Muna Aryal*

INVITED TALKS:

- 15:50 - 16:02 MR image-guided drug and gene delivery to the brain with focused ultrasound - *Richard Price*

- 16:02 - 16:14 Closed-loop feedback control with a clinical transcranial focused ultrasound system for enhanced chemotherapy delivery to brain tumors - *Nathan McDannold*

SPEED TALKS:

- 16:14 - 16:19 Ultrafast volumetric acoustic imaging predicts tissue damage morphology following microbubble-mediated nonthermal brain ablation - *Kullervo Hynynen*
- 16:19 - 16:24 Sonoselective transfection of cerebral vasculature without blood-brain Barrier Disruption - *Catherine Gorick*
- 16:24 - 16:29 Bilateral focused ultrasound-induced blood-brain barrier opening improves spatial memory in the 3xTg Alzheimer's mouse model - *Maria Eleni Karakatsani*
- 16:29 - 16:34 Blood brain barrier disruption by pulsed focused ultrasound with microbubbles or osmotic disruption by mannitol induces sterile brain inflammation - *Scott Burks*
- 16:34 - 16:39 Optimization of focused ultrasound-enabled brain tumor liquid biopsy (fus-lbx) - *Lifei Zhu*
- 16:44 - 16:49 Effects of dexamethasone on vascular permeability and inflammatory response following focused ultrasound and microbubble-mediated bbb treatment - *Kullervo Hynynen*
- 16:49 - 16:54 Therapeutic effects of BBB/BTB opening by FUS in anti-cancer agent delivery for drug-resistant breast cancer brain metastasis model - *Eun-Joo Park*
- 16:54 - 16:59 The pentylentetrazol induced acute epilepsy is alleviated by transcranial focused ultrasound pulsation in rats - *Hao-Li Liu*

17:00 - 17:30 DEBATES - MICRON-SIZED CONTRAST AGENTS HAVE A GREAT FUTURE IN CLINICAL HIFU

CHAIRS: *Gail ter Haar, Joo Ha Hwang*

INVITED SPEAKERS: *Constantin Coussios, Mike Averkiou*

17:30 - 19:00 EUFUS GENERAL ASSEMBLY

20:00 GALA DINNER AT PALAU DE LA MÚSICA

Entrance to Gala Dinner has to be purchased before the meeting

SATURDAY, JUNE 15TH

07:30 - 08:00 **EDUCATION: GETTING INNOVATIVE MEDICAL DEVICES TO MARKET**

Nicolas Guillem

08:00 - 08:30 **EDUCATION: HYPERTHERMIA TECHNOLOGIES**

Holger Gruell

08:30 - 10:00 **ORGAN PANEL: BRAIN**

CHAIRS: *Wladyslaw Gedroyc, Marine Sánchez*

INVITED TALKS:

- 08:30 - 08:41 The future of focused ultrasound surgery: perspectives based on the recent clinical & basic researches - *Jin Woo Chang*
- 08:41 - 08:52 David vs. Goliath: the Italian results with a trans-cranial MRgFUS system integrated with a 1.5T scanner - *Cesare Gagliardo*
- 08:52 - 09:03 Cutting edge imaging-based ultrasound therapies for the brain - *Roland Beisteiner*
- 09:03 - 09:14 Focused low energy single pulse ultrasound therapy in neurological rehabilitation. An overview of actual trends - *Henning Lohse-Busch*
- 09:14 - 09:24 Long-term results of MR Guided Focused Ultrasound Vimthalamotomy in Parkinson's patients with medication-refractory disabling tremor - *Ilana Schlesinger*

SPEED TALKS:

- 09:24 - 09:29 MR guided focused ultrasound thalamotomy for tremor: Lessons learned from 120 cases - *Michael Schwartz*
- 09:29 - 09:34 Neuronavigation-Guided Focused Ultrasound (NaviFUS) for transcranial blood-brain barrier opening clinical trial in recurrent glioblastoma patients - *Ko-Ting Chen*
- 09:34 - 09:39 Alendronate might improve the skull density ratio of MRgFUS candidates with brain disorders - *Hisashi Ito*
- 09:39 - 09:44 Beyond the Thalamus-Unilateral MR guided focused ultrasound for the treatment of essential tremor targeting the ventral intermedialis nucleus and the zone incerta - *Ayesha Jameel*
- 09:44 - 09:49 Does treatment efficiency change when performing bilateral treatments using tcMRgFUS thalamotomy? Study on 4 patients treated bilaterally for Neuropathic Pain - *Jiachen Zhuo*
- 09:49 - 09:54 Three-Year follow-up of prospective trial of focused ultrasound thalamotomy for essential tremor - *Pejman Ghanouni*
- 09:54 - 09:59 The world's initial experience of bilateral treatment of essential tremor using MR guided focused ultrasound - *Ayesha Jameel*

10:00 - 11:00 **ORGAN PANEL: UTERUS**

CHAIRS: *Matthias Matzko, Nikolaos Bailis*

INVITED TALKS:

- 10:00 - 10:12 Fibroids and beyond - *Suzanne LeBlang*
- 10:12 - 10:24 The place of therapeutic ultrasound in uterine diseases - *Jaron Rabinovici*
- #### SPEED TALKS:
- 10:24 - 10:29 Patient triage strategy for minimally-invasive therapies for uterine fibroids and its initial clinical outcomes focusing on MR-HIFU (MR-guided high-intensity focused ultrasound) ablation collaborating with uterine artery embolization (UAE) - *Young Sun Kim*
- 10:29 - 10:34 To assess the suitability for MR-HIFU treatment of uterine fibroids based on multiparametric MR characteristics - *Inez Verpalen*
- 10:34 - 10:39 Targetability of sites in variable pelvic geometries using MRI-guided high-intensity focused ultrasound (MRgHIFU) as assessed in an *in vivo* porcine model - *Lifei Zhu*
- 10:39 - 10:44 Clinical experience with a comprehensive breast-specific MR guided focused ultrasound treatment device - *Allison Payne*
- 10:44 - 10:49 The evaluation of treatment results after MR-HIFU treatment of uterine fibroids using quantitative T2-mapping and diffusion weighted imaging (DWI) - *Inez Verpalen*

11:00 - 11:30 **COFFEE BREAK**

11:30 - 12:30 **ORGAN PANEL: PROSTATE AND KIDNEY**

CHAIRS: *Andreas Melzer, George Schade*

INVITED TALKS:

- 11:30 - 11:42 State of the art of prostate cancer treatment - *Jens Rassweiler*
- 11:42 - 11:54 The role of focal therapy - *Ghulam Nabi*

SPEED TALKS:

- 11:54 - 11:59 Focal HIFU for organ localized prostate cancer: midterm oncological results - *Thomas Hostiou*
- 11:59 - 12:04 Targeted chemo-sonodynamic therapy using ultrasound responsive microbubbles as a treatment for prostate cancer - *Thomas McKaig*
- 12:04 - 12:09 Prostate treatment planning station - *Tobias Preusser*
- 12:09 - 12:14 Early experience of palliative MRI guided transurethral ultrasound ablation for symptomatic locally advanced prostate cancer - *Teija Sainio*
- 12:14 - 12:19 Early experience of salvage MRI guided transurethral ultrasound ablation for locally radiorecurrent prostate cancer - *Visa Suomi*

SATURDAY, JUNE 15TH

12:19 - 12:24 Focal Treatment of prostatic carcinoma using MRgFUS – single site experience in Germany - *Markus Duex*

12:30 - 13:30 **LUNCH BREAK**

13:30 - 14:00 **INDUSTRY PITCH PRESENTATIONS**

Noninvasive focused deep brain stimulation in Alzheimer patients -

Storz Medical - E. Marlinghaus

Advances and perspectives in MR-guided therapy – how we can support as an imaging vendor - *Siemens, S. Josan*

Verasonics

Electronics & Innovation

Storz Medical

Siemens

Theraclion

14:00 - 15:30 **ORGAN PANEL: MUSCULOSKELETAL**

CHAIRS: *Markus Duex, Alessandro Napoli, Alberto Bazzocchi*

INVITED TALKS:

14:00 - 14:15 State of the art of percutaneous treatments in tumor bone lesions - *Francisco Aparisi*

14:15 - 14:30 Focused ultrasound treatment overview - *Pejman Ghanouni*

14:30 - 14:40 Other bone lesions - *Francesco Arrigoni*

14:40 - 14:50 Brief talk regarding Prof. Dux experience on facets - *Markus Duex*

SPEED TALKS:

14:50 - 14:55 Intense Therapeutic Ultrasound for Musculoskeletal Pain Reduction Part 2; Clinical Data - *Michael Slayton*

14:55 - 15:00 Delivery of low intensity pulsed ultrasound to lumbar intervertebral discs using extracorporeal HIFU: a simulation study - *Matthew Adams*

15:00 - 15:05 Sacroiliac joint ablation in a chronic swine model using MRgFUS - *Roland Krug*

15:05 - 15:10 Focused Ultrasound and Radiotherapy for non-invasive palliative pain treatment in patients with bone metastasis - *Marcia Bartels*

15:10 - 15:15 Subacute and long term effects of MR-HIFU ablation on facet joints - *Sin Yui Yeo*

15:30 - 15:45 **COFFEE BREAK**

15:45 - 17:15 **ORGAN PANEL: LIVER AND PANCREAS**

CHAIRS: *Joan Vidal-Jové, Milka Marinova*

INVITED TALKS:

15:50 - 16:05 State of the art - *Joo Ha Hwang*

16:05 - 16:15 Interventional Oncology Ablation in Liver - *Xavier Serres*

16:15 - 16:25 Phase I Study of Robotically-Assisted Sonic Therapy: Safety and Efficacy of First in Man Experience with Hepatic Histotripsy - *Joan Vidal-Jové*

SPEED TALKS:

16:25 - 16:30 Hyperthermic ablation with focused ultrasound (FUS-HIFU) in pancreatic cancer. Updated resu - *Joan Vidal-Jové*

16:30 - 16:35 Therapeutic Outcomes of Focused Ultrasound in Combination with Doxorubicin-loaded Nanoparticle-microbubble Complex for Pancreatic Cancer Xenograft Model - *Hyo-Jin Kang*

16:35 - 16:40 Development of HIFU treatment strategies for extracorporeal treatment of hepatic tumors with a toroidal transducer. Results of in vivo experiments - *Sophie Cambronero*

16:40 - 16:45 Clinical Trial to quantify urinary stone repositioning by ultrasound - *Michael Bailey*

16:45 - 16:50 Pancreas ablation and hyperthermia in a porcine model using US-MR-HIFU: proof-of-concept study results of the European project iPaCT - *Edwin Heijmann*

16:50 - 16:55 Potentiation of ultrasonic chemotherapy on a 3D co-culture model of pancreatic adenocarcinoma - *Jean Louis Mestas*

16:55 - 17:00 Trans-fusimo – Model based treatment support for FUS in moving abdominal organs - *Cesare Gagliardo and Andreas Melzer*

17:00 - 17:05 HIFU Project in Oxford: Up-to-date Clinical Status and Future Prospective - *Feng Wu*

17:05 - 17:10 Experience in treating pancreatic cancer with HIFU in Korea - *Taehee Kim*

17:10 - 17:15 The role of microbubble contrast agent in high intensity focused ultrasound: ceus detector, acoustic environmental modifier and far-field protector - *Kun Zhou*

17:15 - 17:30 **OTHER CLINICAL VASCULAR AND BENIGN HIFU APPLICATIONS**

CHAIRS: *Andreas Melzer, Joan Vidal-Jové*

SPEED TALKS:

17:15 - 17:22 Extra Corporeal Ultrasound-guided High-Intensity-Focused-Ultrasound (HIFU) treatment in superficial lower limb veins – First in Human study findings - *Michel Nuta*

17:22 - 17:29 Macroscopic and microscopic evaluation of HIFU thermal ablations of sheep veins at 30, 60 and 90 days - *Nesrine Barnat*

17:29 - 17:36 HIFU treatment of benign thyroid nodules in Spain. 12-months follow-up - *Pedro Pablo Ortiz Remacha*

17:40 **CLOSING**

Joo Ha Hwang, Andreas Melzer, Joan Vidal-Jové,

INVITED SPEAKERS AND CHAIRS

Aparisi, Francisco - <i>Hospital Nisa 9 de Octubre, Spain</i>	Dubernard, Gil - <i>Croix-Rousse University Hospital, France</i>	Lohse-Busch, Henning - <i>Rheintalklinik, Germany</i>	Sapozhnikov, Oleg - <i>University of Washington, USA</i>
Arrigoni, Francesco - <i>San Salvatore Hospital, Italy</i>	Duex, Markus - <i>Nordwest Hospital, Germany</i>	Marinova, Milka - <i>University Hospital & Medical School of Bonn, Germany</i>	Schade, George - <i>University of Washington, USA</i>
Aryal, Muna - <i>Stanford University, USA</i>	Gagliardo, Cesare - <i>University of Palermo, Italy</i>	Martínez, Raúl - <i>CINAC Hospital HM Puerta del Sur, Spain</i>	Schlesinger, Ilana - <i>Rambam Health Care Campus, Israel</i>
Aubry, Jean-François, CNRS - <i>Institute of Physics For Medicine, France</i>	Gavrilov, Leonid - <i>Acoustics Institute, Russian Federation</i>	Matzko, Matthias - <i>Imaging Service AG, Germany</i>	Serres, Xavier - <i>Vall d'hebron Institut de Recerca, Spain</i>
Averkiou, Mike - <i>University of Washington, USA</i>	Gedroyc, Wladyslaw - <i>Imperial Healthcare, UK</i>	Maxwell, Adams - <i>University of Washington, USA</i>	Sheybani, Natasha - <i>University of Virginia, USA</i>
Bailis, Nikolaos - <i>Leipzig University, Germany</i>	Ghanouni, Pejman - <i>Stanford University, USA</i>	McDannold, Nathan - <i>Brigham and Women's Hospital, USA</i>	Shoji, Sunao - <i>Tokai University Hachioji Hospital, Japan</i>
Bazzocchi, Alberto - <i>The Rizzoli Orthopaedic Institute, Italy</i>	Gray, Michael - <i>University of Oxford, UK</i>	Melzer, Andreas - <i>Leipzig University, Germany</i>	Staruch, Robert - <i>Profound Medical, Canada</i>
Beisteiner, Roland - <i>Medical University of Vienna, Austria</i>	Gruell, Holger - <i>University Hospital of Cologne, Germany</i>	Moonen, Chrit - <i>University Medical Center Utrecht, Netherland</i>	Stride, Eleanor - <i>University of Oxford, UK</i>
Beserra, Amanda - <i>University of Calgary, Canada</i>	Guha, Chandan - <i>Montefiore Medical Center, USA</i>	Nabi, Ghulam - <i>University of Dundee and NHS Tayside, UK</i>	ter Haar, Gail - <i>The Institute of Cancer Research, UK</i>
Blumenfeld, Morry - <i>Quescon, Israel</i>	Guillem, Nicolas - <i>EDAPTMS, France</i>	Napoli, Alessandro - <i>Sapienza University of Rome, Italy</i>	Treeby, Bradley - <i>University College London, UK</i>
Brüningk, Sarah - <i>The Institute of Cancer Research, UK</i>	Hamed Abdelfattah, Mohamed - <i>HIFU, Egypt</i>	N'Djin, W. Apoutou - <i>INSERM, France</i>	Tu, Juan - <i>Nanjing University, China</i>
Callan, John - <i>School of Pharmacy and Pharmaceutical Sciences, UK</i>	Haworth, Kevin - <i>University of Cincinnati, USA</i>	Odéen, Henrik - <i>University of Utah, USA</i>	Umemura, Shin-ichiro - <i>Tohoku University, Japan</i>
Cao, Elodie - <i>INSERM, France</i>	Heijman, Edwin - <i>University Hospital Cologne, Germany</i>	Pahk, Ki Joo - <i>Korea Institute of Science and Technology (KIST), Republic of Korea</i>	Verhagen, Lennart - <i>University of Oxford, UK</i>
Carugo, Dario - <i>University of Southampton, UK</i>	Hwang, Joo Ha - <i>Stanford University, USA</i>	Price, Richard - <i>University of Virginia, USA</i>	Versluis, Michel - <i>University of Twente, Netherlands</i>
Chang, Jin Woo - <i>Yonsei University College of Medicine, Republic of Korea</i>	Kassell, Neal F. - <i>Focused Ultrasound Foundation, USA</i>	Pulkkinen, Aki - <i>University of Eastern Finland, Finland</i>	Vidal-Jové, Joan - <i>Hospital University Mútua Terrassa, Comprehensive Tumor Center Barcelona, Spain</i>
Coussios, Constantin - <i>University of Oxford, United Kingdom</i>	Khokhlova, Tatiana - <i>University of Washington, USA</i>	Rabinovici, Jaron - <i>Sheba Israel, Israel</i>	Wang, Zhibiao - <i>Chongqing Medical University, China</i>
Cranston, David - <i>Oxford University, UK</i>	Konofagou, Elisa - <i>Columbia University, USA</i>	Rassweiler, Jens - <i>SLK Kliniken, Germany</i>	Wood, Brad - <i>Center for Interventional Oncology, CC & NCI/CCR, USA</i>
Crum, Lawrence - <i>University of Washington, USA</i>	Kubanek, Jan - <i>University of Utah, USA</i>	Repasky, Elizabeth - <i>Roswell Park Comprehensive Cancer Center, USA</i>	Xu, Zhen - <i>University of Michigan, USA</i>
Dalecki, Diane - <i>University of Rochester, USA</i>	Lafon, Cyril - <i>INSERM, France</i>	Rodríguez, Jordi - <i>Mútua Terrassa University Hospital, Spain</i>	Zhang, Lian - <i>Chongqing Medical University, China</i>
Dimitrov, Drovomir - <i>Medical University Pleven, Bulgaria</i>	Landgraf, Lisa - <i>ICCAS, Germany</i>	Sanchez, Marine - <i>INSERM, France</i>	
	Le Blang, Suzanne - <i>Focused Ultrasound Foundation, USA</i>		
	Legon, Wynn - <i>University of Virginia, USA</i>		

POSTERS THURSDAY, JUNE 13TH

- # **1** - Ultrasound transmission through human hair , *Pauline Agou*
- # **2** - Validation of neonatal lamb model for preclinical evaluation of MR-Guided Focused Ultrasound brain applications, *Matthew Alexander*
- # **3** - Estimation of the temperature increase during a HIFU treatment using ultrasound backscattered signals. Correlation with histological changes, *Victor Barrere*
- # **4** - Phase aberration correction in focused ultrasound fields with shock fronts, *Christopher Bawiec*
- # **5** - Modelling a Collaborative Robot with the IEEE 11073 SDC Standard for Combined Focused Ultrasound and Radiation Therapy, *Johann Berger*
- # **6** - HIFU localized hyperthermia for MR-Linac accelerators, *Giovanni Borasi*
- # **7** - Swine model for the evaluation of blood-brain barrier disruption with the sonocloud® Device using definity® and sonovue® microbubbles, *Guillaume Bouchoux*
- # **8** - Treatment of essential tremor (ET) and Parkinson disease (PD) tremor with MRgFUS: preliminary imaging and clinical results and their correlation, *Federico Bruno*
- # **9** - Magnetic resonance-guided focused ultrasound versus deep brain stimulation in medically-refractory essential tremor: A cost-consequence analysis in the Korean setting, *Lance Richard*
- # **10** - Post hoc prediction of blood-brain barrier opening with power cavitation imaging in non-human primates, *Mark Burgess*
- # **11** - Autophagy and dystrophic skeletal muscle regeneration are differentially modulated by different therapeutic ultrasound modalities, *Scott Burks*
- # **12** - Assessment of MR thermometry reliability for monitoring HIFU ablations in bone, *Paolo Cabras*
- # **13** - Acoustic holograms for transcranial focusing of arbitrary ultrasonic fields into the brain, *Francisco Camarena*
- # **14** - Simulation of temperature rise in mobile and elastic volume, *Elodie Cao*
- # **15** - Intensive HIFU simulation based on surrogate models using CIVA Healthcare platform application to parametric studies and sensitive analysis, *Sylvain Chatillon*
- # **16** - Cavitation Dose Painting for Predicting the Location and Concentration of Nanoclusters Delivered by Focused Ultrasound-Induced Blood-Brain Barrier Disruption, *Hong Chen*
- # **17** - Fusion MRI-Ultrasound guided histotripsy system, *Sang Won Choi*
- # **18** - Remote activation of engineered neural stem cells for the release of TNF α and IL15 via high-intensity focused ultrasound, *James Chu*
- # **19** - Multiple-focusing method for treatment time reduction in HIFU thermal ablation, *Euisuk Chung*
- # **20** - Development of a HIFU treatment using a toroidal transducer for pancreatic adenocarcinoma. Preliminary in vivo study , *Celia Cilleros*
- # **21** - Effect of bubble-bubble interactions on subharmonic emissions of a monodisperse bubble cloud, *Corentin Cornu*
- # **22** - Blood-brain tumor barrier opening with MR Image-guided focused ultrasound augments interstitial flow and facilitates nanoparticle-mediated transfection, *Colleen Curley*
- # **23** - #10yearschallenge: Our Roadmap to FURTHER - Focused Ultrasound and RadioTherapy in patients with bone metastases, *Cristina Marrocchio*
- # **24** - MRI-Guided focused ultrasound robotic system for experiments in mice, *Christakis Damianou*
- # **25** - Transient Acoustic Streaming in Confined Cavity from Pulsed HIFU Exposure, *Hussein Daoud*
- # **26** - Ultrasound-image based navigation guidance for 3D planning of conformal interstitial HIFU ablations, *Loïc Daunizeau*
- # **27** - Ultrasound-assisted drug delivery to solid tumours in silico, *Matheus de Andrade*
- # **28** - Ventilator Driven Motion Model for Pre-clinical Validation of MRgFUS Systems, *Andrew Dennison*
- # **29** - Pain relief and local tumor control after focused ultrasound surgery as treatment option for advanced pancreatic cancer patients, *Dobromir Dimitrov*
- # **30** - Delivery of basic fibroblast growth factor (bFGF) and control of endothelial network formation using acoustic droplet vaporization (ADV), *Mario Fabiilli*
- # **31** - Therapeutic response to free cabazitaxel and cabazitaxel loaded nanoparticles combined with ultrasound and microbubbles in a transgenic mouse prostate cancer model, *Stein-Martin Fagerland*
- # **32** - Ultrasonic-magnetic hybrid gene delivery system for Parkinson's disease treatment in mice model, *Ching-Hsiang Fan*
- # **33** - DNA damage induced by combined doxorubicin and unseeded controlled stable cavitation treatment in murine mammary tumor cells, *Cécile Fant*
- # **34** - The first coagulative necrosis point induced by HIFU treatment for isointense uterine fibroids on MRI T2WI : Retrospective analysis and theoretical simulation, *Li Faqi*
- # **35** - A theranostic polymer-based nanoparticle for use in sonodynamic therapy (sdt), *Sian Farrell*

- # 36 - Temporal proteomic immune changes of murine breast and melanoma tumor microenvironments without and with pulsed focused ultrasound, *Joseph Frank*
- # 37 - Acute evaluation of brain and cerebrospinal fluid biomarkers following blood brain barrier opening with pulsed focused ultrasound and definity using passive cavitation detection feedback, *Joseph Frank*
- # 38 - Experimental evaluation of the impact of ultrasound exposure parameters on necrotic lesions induced in tissue by a robotic ultrasound-guided HIFU ablation device for treating solid tumors in small animals, *Łukasz Fura*
- # 39 - Targeted delivery of multiple drug payloads to pancreatic tumours using an ultrasound responsive microbubble-liposome conjugate, *Jinhui Gao*
- # 40 - Transcranial MR acoustic radiation force imaging and simulation in sheep, *Pooja Gaur*
- # 41 - Unilateral mr guided focused ultrasound thalamotomy for essential tremor: a british experience, *Wladyslaw Gedroyc*
- # 42 - Ultrasound-stimulated Microbubble Indentation of Fibrin Clots, *David Goertz*
- # 43 - Multiple lesion generation during HIFU thermal therapy: numerical modeling & parametric study, *Pragya Gupta*
- # 44 - Stimulation of the rat dorsal root ganglion for chronic pain regulation with focused ultrasound, *Pohung Hsu*
- # 45 - Ultrasound-mediated skin erosion for hepatitis B immunization, *Yxin Hu*
- # 46 - Optimal overlapping protocol and robustness assessment of blood-brain barrier opening in humans using a single-element focused ultrasound transducer, *Sergio Jiménez Gambin*
- # 47 - Accuracy of Acute MR Predictors of Non-Perfused Ablation Volume in Multiple Tissue Types, *Sara Johnson*
- # 48 - New focused ultrasound protocol to improve blood-brain barrier permeability and doxorubicin delivery into the targeted rat brain, *Byeongjin Jung*
- # 49 - Ultrasound-Enhanced Drug Delivery for Treatment of Acanthamoeba Keratitis, *Bianca Karpinecz*
- # 50 - Mapping clinical HIFU thermal tissue ablation using simulation and MR-Imaging, *Maria Karzova*
- # 51 - Characteristics of therapeutic temperature monitoring of MR-Guided focused ultrasound therapy for bone and joint diseases, *Motohiro Kawasaki*
- # 52 - On-Demand, targeted light generation in bio-compatible elastomers using high-intensity focused ultrasound, *Gun Kim*
- # 53 - A new frequency domain passive acoustic mapping method using passive hiltbert beamforming to reduce the computational complexity of fast fourier transform, *Pilsu Kim*
- # 54 - Cavitation nucleation by definity® infused through an ekosonic® catheter, *Maxime Lafond*
- # 55 - Pelvic soft tissue deformation estimation for patients in magnetic resonance guided high-intensity focused ultrasound (MRGHIFU) treatment positions, *Ngo Fung Daniel Lam*
- # 56 - Diminished expression of p glycoprotein is associated with PJNK-dependent pathway after blood-brain barrier disruption induced by MIR-Guided focused ultrasound, *Eunhee Lee*
- # 57 - Comparison of ray tracing and hybrid angular spectrum phase correction methods on focal spot pressure, *Steve Leung*
- # 58 - Theoretical Simulation and Experimental Study of HIFU Non-Fourier Bioheat Transfer Considering Thermoacoustic Lenses and Thermal Wave Effects, *Faqi Li*
- # 59 - Response to pain in the treatment of benign thyroid nodules with HIFU, *Pedro Pablo Ortiz Remacha*
- # 60 - Transcranial temperature rise comparison through phase corrections of embedded exablate function and kranion software, *Dong-Guk Paeng*
- # 61 - A clinical system for non-invasive blood-brain barrier opening using a neuronavigation-guided single-element transducer, *Antonios Pouliopoulos*
- # 62 - Simultaneous MR Thermometry and acoustic radiation force imaging of HIFU treatment based on echo-shifted sequence, *Yangzi Qiao*
- # 63 - Body Mounted Robot for High Intensity Focused Ultrasound, *Kevin Cleary*
- # 64 - A MRI Compatible Large Scale Array System for Low Intensity Therapeutic Ultrasound, *Weibao Qiu*
- # 65 - Volumetric and rapid MR-Acoustic radiation force imaging using simultaneous multislice imaging (SMS), *Bruno Quesson*
- # 66 - Repeated scanning ultrasound improves motor function and clears neuronal tau by autophagy in tau transgenic mice, *Jae Hee Song*
- # 67 - Neurostimulation by focused ultrasound in ex vivo mouse brain slices as measured with a microelectrode array (MEA) system, *Ivan Suarez Castellanos*
- # 68 - Development and characterization of a small animal hyperthermia system, *Steffen Tretbar*
- # 69 - Hepatic Ablation with Robotically Assisted Sonic Therapy (RAST) Through Full Rib Coverage in a Porcine Model, *Timothy Ziemlewicz*
- # 70 - Review of Robotic Assisted Sonic Therapy (RAST) in a Large Porcine Model and Implications for Future Development, *Timothy Ziemlewicz*
- # 71 - Synthetic schlieren tomography of focused ultrasound fields, *Aki Pulkkinen*

POSTERS FRIDAY, 14TH

- # **72** - Gellan gum as a Tissue Mimicking Material for combined HIFU and Radiotherapy, *Alberto Sanchez-Pastor Gomis*
- # **73** - Validating Ultrasound Beam Prediction Modeling for Breast Tumor Treatment, *Allison Payne*
- # **74** - MR guided focused ultrasound thalamotomy for Essential Tremor: A 5 year single center experience, *Alon Sinai*
- # **75** - Ultrasound-induced blood spinal cord barrier opening in rabbits and mice, *Anne-Sophie Montero*

- # **76** - Tailoring Microbubble Shell Composition For Therapeutic Ultrasound Applications, *Antonios Pouliopoulos*
- # **77** - Registration of In Vivo Magnetic Resonance Images To Volumetric Histopathology, *Blake Zimmerman*
- # **78** - Simultaneous rapid and multi-slice MR-temperature and MR-displacement imaging during transcranial focused ultrasound in non-human primate, *Bruno Quesson*
- # **79** - Focused Ultrasound Immunomodulation in Melanoma, *Christopher Margraf*
- # **80** - Physics based, validated reliable modeling of single element focused ultrasound transducer (SEFT), *Cristina Pasquinelli*
- # **81** - From 2D to 3D real-time passive cavitation imaging of pulsed cavitation ultrasound therapy, *Daniel Suarez*
- # **82** - Oxygen Generating Nanoparticles for Improving Sonodynamic Therapy in Hypoxic Tumours, *Dean Nicholas*
- # **83** - A surface acoustic wave-based platform for cellular mechanotransduction investigation, *Defei Liao*
- # **84** - Modeling of Carbon nanotube transducer considering acoustic characteristics of the human skull, *Dong-Guk Paeng*
- # **85** - Cell-cycle-dependences of membrane permeability and viability observed for HeLa cells undergoing multi-bubble-cell interactions, *Dongxin Yang*
- # **86** - Engineering acoustically activated nanodroplets for bone fracture repair, *Eleanor Stride*
- # **87** - Novel Acoustic Coupling Bath to Improve MRI Guidance for Focused Ultrasound Surgery, *Eli Vlasisavljevich*
- # **88** - Therapeutic ultrasound phased array with arbitrarily shaped, densely packed, removable modular elements, *Ellen Yeats*
- # **89** - A preliminary study for evaluation of sonodynamic therapy in combination with BBB-opening by FUS, *Eun-Joo Park*
- # **90** - Integrin-dependent calcium signaling induced by single impulsive bubbles, *Fenfang Li*
- # **91** - Stroboscopic Schlieren Imaging of Ultrasound Fields with Large Field of View, *Florian Steinmeyer*
- # **92** - Mechanism of HIFU interaction in flooded lung and their consequences on ablation schemes for FUS on lung cancer, *Frank Wolfram*
- # **93** - Predicting high intensity focused ultrasound thalamotomy lesions using magnetic resonance thermometry and 3D Gaussian modelling, *Graham Seasons*

- # 94 - Safety and feasibility of temporary blood-brain barrier disruption with the sonocloud-3 implantable ultrasound device in recurrent glioblastoma, *Guillaume Bouchoux*
- # 95 - Design of 1024-element hemispherical arrays for ultrasonic brain therapy, *Hansol Yoon*
- # 96 - NaviFUS: A Neuronavigation-Guided Focused Ultrasound (NaviFUS) Medical Device Design, *Hao-Li Liu*
- # 97 - MRgFUS treatment of desmoid tumor with preparatory nerve protection using MR-guided hydrodissection, *Heikki Pärssinen*
- # 98 - Rapid prototyped microvessel networks for ultrasound mediated targeted drug delivery research, *Helen Mulvana*
- # 99 - Low-intensity focused ultrasound stimulation to frontal eye-field modulates human antisaccade behavior, *Hyungmin Kim*
- # 100 - Modelling for MRGHIFU treatment of recurrent gynaecological tumours, *Ian Rivens*
- # 101 - Manipulation during MR-HIFU treatment of fibroids located in the retroverted uterus or rectosigmoid region., *Inez Verpalen*
- # 102 - Modulation of electrical activity of individual neurons by focused ultrasound as measured with a whole-cell patch-clamp setup, *Ivan Suarez Castellanos*
- # 103 - Feasibility studies in mice and sheep to validate ultrasound-mediated blood-brain barrier opening for potential therapeutic interventions, *Jae Hee Song*
- # 104 - Design of an Acoustic Reflective Casing for Neurostimulation Studies with Microscopy, *Jak Loree-Spacek*
- # 105 - The clinical research of efficacy and safety of ultrasound hyperthermia combined with TPF regimen in the treatment of advanced oral squamous cell carcinoma, *Jian Meng*
- # 106 - Evaluation of a Mobile Ultrasound Device for Robot-Assisted Focused Ultrasound Applications, *Johann Berger*
- # 107 - The interaction of a shockwave with a vapour bubble during boiling histotripsy, *Ki Joo Park*
- # 108 - Quantitative acoustic coupling evaluation in US-guided focused ultrasound surgery, *Laura Morchi*
- # 109 - In-vivo Validation of a Model-Based Control Algorithm for MR-HIFU Hyperthermia, *Lukas Sebeke*
- # 110 - Intratumoral microdistribution and therapeutic response of enzyme sensitive liposomes in human prostate cancer xenografts after ultrasound mediated delivery, *Marieke Olsman*
- # 111 - Development of a HIFU treatment of breast tumors using a toroidal transducer. Preliminary experiments in human samples, *Marine Sanchez*
- # 112 - Acoustic droplet vaporization in acoustically responsive scaffolds: A frequency and volume fraction study, *Mario Fabilli*
- # 113 - How do culture containers influence ultrasound field during in vitro sonication experiments?, *Martin Snehota*
- # 114 - Numerical and experimental study on the cavitation enhanced temperature elevation in soft tissue during high intensity focused ultrasound, *Maxim Solovchuk*
- # 115 - Quality of Life after MR guided focused ultrasound thalamotomy for tremor, *Michael Schwartz*
- # 116 - Intense Therapeutic Ultrasound for Musculoskeletal Pain Reduction Part I; Technical and Preclinical Data, *Michael Slayton*
- # 117 - Acoustic modeling and focus quality through the ribcage with a dual mode ultrasound random phased array, *Muhammad Zubair*
- # 118 - A fast parallel computing method for transcranial ultrasound phase correction based on k-space propagation models and acoustic holography method, *Nan Wu*
- # 119 - Targeting immunosuppression for enhanced focused ultrasound efficacy in TNBC, *Natasha Sheybani*
- # 120 - Evaluation of different in-vitro setups concerning transferability into clinical application of extracorporeal shockwave lithotripsy, *Nina Reinhardt*
- # 121 - Fast scanning for holographic characterization of sources, *Oleg Sapozhnikov*
- # 122 - Real-time closed-loop control of transcranial fus-induced localized thermal lesions in vivo with minimal collateral damage , *Emad Ebbini*
- # 123 - Is age a limiting factor in the treatment of benign thyroid nodules with HIFU?, *Pedro Pablo Ortiz Remacha*
- # 124 - Semi-automatic and automatic segmentation of CT images for modeling therapeutic ultrasound beams in a human body, *Petr Yuldashev*
- # 125 - A comparison study of high-speed photography and passive acoustic mapping for monitoring of focused ultrasound induced cavitation bubbles, *Pilsu Kim*
- # 126 - MR-HIFU mild hyperthermia with radiation and chemotherapy for rectal cancer: Phase I study in recurrent rectal cancer, and retrospective study for primary disease, *Robert Staruch*
- # 127 - Fast volumetric liquefaction of large hematomas ex vivo using continuous HIFU focus translation, *Sergey Tsysar*
- # 128 - Study of the effect of cranial holes due to emissary veins and inhomogeneities in the thickness of the skull when focusing a transcranial ultrasound beam, *Sergio Jiménez Gambín*

- # 129 - Tailor-Made polymeric microbubbles combined with ultrasound for blood brain barrier opening, *Shani Tsirkin*
- # 130 - Ultrasonic imaging of tissue displacement induced by short burst exposure of therapeutic ultrasound for estimation of ultrasonically heated region, *Shin Yoshizawa*
- # 131 - Experimental setup for characterization of low intensity ultrasound for targeting the cortical region in the brain, *Shirshak Shrestha*
- # 132 - Effects of physical parameters on estimating acoustic intensity in focused ultrasound field using infrared camera, *Simon Yu*
- # 133 - Magnetic resonance-guided focused ultrasound thalamotomy in essential tremor: One-year clinical experience in a single center, *Stefano Tamburin*
- # 134 - High intensity applicator for parallelized sonication of well-plates, *Steffen Tretbar*
- # 135 - In vivo measurements of sacral thickness and sacral nerve lateral branch depth for focused ultrasound ablation of patients with sacral iliac joint pain: Predictors for patient candidacy, *Suzanne Leblang*
- # 136 - Pore Eccentricity Improves CT Based Estimates of Acoustic Velocity in Human Skull Bone, *Taylor Webb*
- # 137 - Apparent diffusion coefficient classification predicts outcome of magnetic resonance-guided high-intensity focused ultrasound treatment of uterine fibroids, *Teija Sainio*
- # 138 - Tissue-selective Ablation with Robotically Assisted Sonic Therapy (RAST): Radiologic-Pathologic Findings, *Timothy Ziemlewicz*
- # 139 - Potential for Thyroid Ablation with Robotically Assisted Sonic Therapy (RAST) with histotripsy: Proof-of-concept in a Porcine Model, *Timothy Ziemlewicz*
- # 140 - High frequency (20 mhz) focused ultrasound - a novel method for dermal intervention, *Torsten Bove*
- # 141 - Preclinical MRI-Guided focused ultrasound hyperthermia in 7 t MRI, *Upasana Roy*
- # 142 - Robotic high-intensity focused ultrasound for prostate cancer treatment: 10 years follow-up, *Viacheslav Solovov*
- # 143 - High intensity ultrasound treatment monitoring by passive elastography: an in vitro feasibility study, *Victor Barrere*
- # 144 - Feature selection for classifying the treatment outcome of high-intensity focused ultrasound therapy in uterine fibroids, *Visa Suomi*
- # 145 - A Modified PMN-PT Ceramic based 2D Array Transducer for Low-intensity Ultrasound Therapy, *Weibao Qiu*
- # 147 - In vitro focused ultrasound hyperthermia for radiosensitization of human cancer cells, *Xinrui Zhang*
- # 148 - Reducing secondary hot spots in/off axial focus shifting for phased High-Intensity focused Ultrasound system by using frequency modulation waveform A simulation study, *Xiongfei Qu*
- # 149 - Long-term results of MR Guided focused ultrasound VIM-thalamotomy in parkinson's patients with medication-refractory disabling tremor, *Alon Sinai*
- # 150 - Transscleral drug delivery mediated by low-frequency ultrasound, *Yaxin Hu*
- # 151 - Suppression of cavitation generation outside focal region by split-aperture transmission methods, *Yui Tanaka*
- # 152 - Robotic Driven Motion Model for Static vs Dynamic MRgFUS Systems, *Andrew Dennisson and Andreas Melzer*

SOCIAL PROGRAM

Welcome Reception

Thursday 13th June, from 19h15

Will take place at the Universitat de Barcelona, Gardens, next to the Symposium Exhibition Area



The historic Barcelona University building, designed by **Elies Rogent**, was built between 1863 and 1882. It was the new home of the former university, the **Estudis Generals**, which was founded in 1450 and returned to **Barcelona** following the closure of the **University of Cervera**, in 1837. Initially, the university was housed on the premises of the former Convent del Carme and in part of the Hospital de la Santa Creu, but there wasn't enough room. Elies Rogent designed a bold, neo-Romanesque structure which fostered the expansion of the city outside the city walls. The Barcelona's citizens at the time were amazed at the imposing new building.

Welcome reception sponsored by:



Gala Dinner

Friday 14th June, from 20h00

Gala dinner at Palau de la Música Catalana



On June 14th from 20h, the 19th Intl. Symposium of ISTU| 5th European Symposium of EUFUS official Gala Dinner will take place at the **Palau de la Musica** hall and terrace. Please join in a cocktail party based on local food, and there will be some surprises! Don't miss it! **Palau de la Música Catalana**, built between 1905 and 1908 by the modernist architect **Lluís Domènech i Montaner** as a home for the **Orfeo Català**, is an architectural jewel of Catalan Art Nouveau. The only concert venue in this style to be listed as a **World Heritage Site by UNESCO** (4th December 1997). You can get your tickets at the registration process until June 8th.

Gala Dinner sponsored by:



19th international symposium of ISTU 5th European Symposium of EUFUS

The first joint meeting of ISTU and EUFUS will be held at the very prestigious location of Barcelona University surrounded by many highlights of Barcelona City.

Barcelona is located at the Mediterranean sea in the north of the Spanish coast, it is known to be Spain's secret capital city. It certainly is the most cosmopolitan and economically most active city in this country.

It has always proved to be modern following the latest international trends or be ahead of them. Especially Barcelona's marvellous architecture is always overwhelming.

Barcelona has a very rich history, reflected by numerous monuments of Romanesque, Gothic and Renaissance periods or even before, including the historic site of Barcelona University.

Among lots of culture and enjoyment you can expect:

- Scientific presentations and invited lectures, poster sessions and specialty interest workshops, student awards and named lectures
- basic science and new developments of ultrasound therapy systems and applications
- covering all major manufactures in open discussions led by experts in the field concentrating on the main areas of medical application

Particular emphasis is given to the clinical use reflected by EUFUS „organ panels“, face to face disputes, what can go wrong? Sessions and early attempts of consensus on FUS applications. You will not miss the latest developments and technologies.



Conference site at Historic University of Barcelona

For further information and EUFUS Membership please visit www.EUFUS.org or email Andreas Melzer: office@EUFUS.org



Ultra- sound Therapy

19th International Symposium of ISTU
5th European Symposium of EUFUS

Joint Meeting
2019 June 13-15 Barcelona
at Historic University of Barcelona



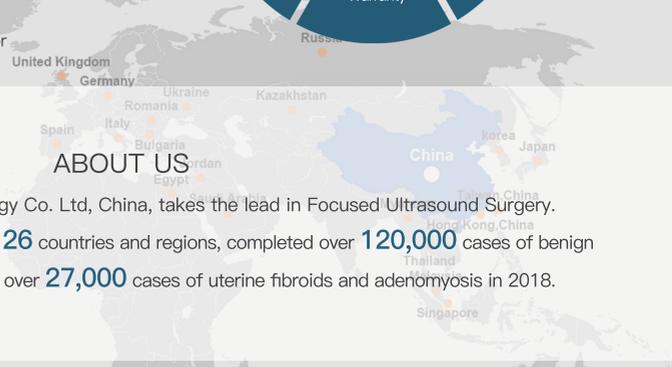
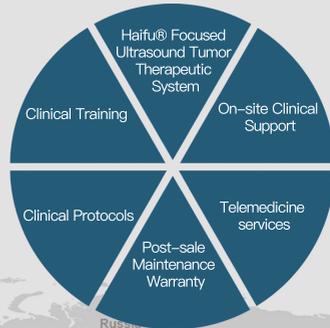


(Model JC200, CE marked)

Indications

- Uterine fibroids
- Adenomyosis
- Breast tumor
- Liver tumor
- Pancreatic cancer
- Bone tumor
- Kidney tumor
- ...

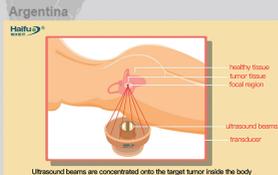
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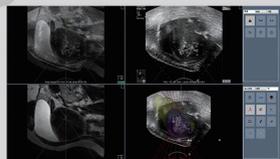
ABOUT US

Chongqing Haifu Medical Technology Co. Ltd, China, takes the lead in Focused Ultrasound Surgery.

More than **200** Haifu® HIFU centers in **26** countries and regions, completed over **120,000** cases of benign and malignant tumors by 2018 and over **27,000** cases of uterine fibroids and adenomyosis in 2018.



(Treatment Presentation)



(Double-image guided HIFU)



Mutua Terrassa University Hospital (Barcelona, Spain)



Churchill Hospital of Oxford University (Oxford, UK)



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- Real-time visualization of pulse distribution



NEUROLITH® system

- Focused stimulation of deep cerebral regions
- Personalized 3D visualization of patient's head
- 3D infrared camera system for precise cerebral tracking
- Patient database



RF Amplifier Power/Frequency Chart

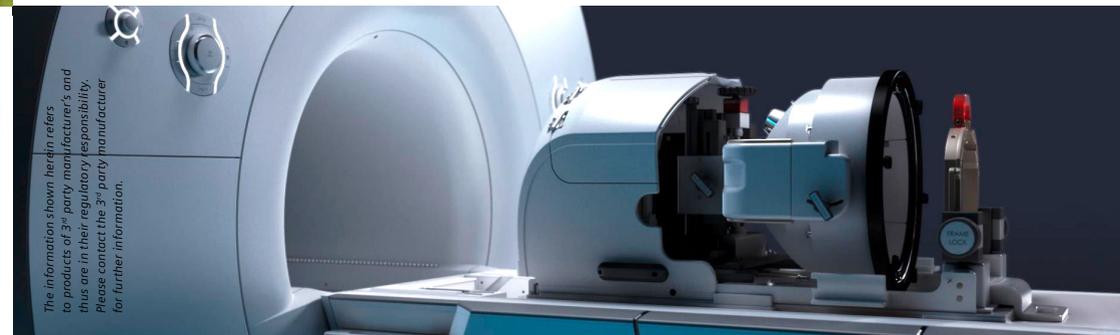


E&I supports the vast and exciting developments in medical research and treatment in the application of therapeutic ultrasound. We have a proven track record of manufacturing robust RF amplifiers; known throughout the industry for their ruggedness and reliability

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The solution for the treatment of essential tremor

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MR imaging plays an increasingly important role in planning, guiding and monitoring minimal invasive procedures. As a leading imaging equipment vendor it is our clear target to provide an open platform and well defined interfaces to enable both companies and researchers to seamlessly integrate with the MR environment.

With Access-i and other developments in the space of MR image guidance for therapy we aim to remove boundaries and restrictions toward a more widespread clinical adoption of MR in therapy.

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Verasonics and Sonic Concepts introduce the HIFUPlex™ portfolio

HIFUPlex™ brings together Verasonics' Vantage systems with Sonic Concepts' transducers to address the full range of applications in focused ultrasound, and to meet a wide range of budgets.

- Choose from 6 standard sets of HIFU and imaging transducers
- Provides researchers and developers an upgrade pathway from any Vantage configuration, as well as from non-USgFUS solutions using Sonic Concepts' Transducer Power Output™(TPO)
- The Vantage software now includes a simple graphical user interface, with interleaving scripts that control the major parameters of HIFU and imaging from the same transmitters



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