



23rd International Conference on Biomedical Applications of Electrical Impedance Tomography

RWTH Aachen University, Germany
12-14 June 2023

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About the Event

The RWTH Aachen University and the Chair for Medical Information Technology are pleased to host the 23rd International Conference on Biomedical Applications of Electrical Impedance Tomography (EIT2023).

We are happy to invite everyone to the city of Aachen and want to thank the electrical impedance tomography community for all the support shown for hosting the conference.

Aachen is a hub of scientific research and a vibrant city that has a rich history of innovation and discovery. With its universities, research institutes and industry partnerships, Aachen is the ideal location to bring together leading experts in the field of EIT. We are honored to host this conference and look forward to the exchange of ideas, knowledge and experience that it will bring.

The conference gives a platform for investigators in all aspects of EIT and related areas such as bioimpedance to converse on common fields of interest, whilst also being an opportunity for the community to broaden its outlook in clinical applications and new technologies. We are eager to hear about your contributions to this field and hope that you will make many valuable connections during this event.

We hope you have enjoyable and productive days as our guests in Aachen.

EIT 2023 Organizing Committee

Organizing committee

Steffen Leonhardt
Daniel Voss
Patrick Borchers

Program

Monday, 12th of June

	Ford Hall	Generali Hall
8:00–9:00	Registration	
9:00–9:15	Welcome Address	
09:15–10:15	Thomas Muders Keynote Talk	
10:15–10:45	Poster Pitches	
10:45–11:30		Poster Session + Coffee
11:30–13:00	Oral Session Thorax	
13:00–14:00	Lunch	
14:00–14:45	Oral Session Thorax	
14:45–15:45	David Holder Keynote Talk	
15:45–16:00	Coffee	
16:00–17:00	Workshop Data Format	Poster Session + Coffee
17:00–18:00	Oral Session Hardware	
18:00–19:00	Reception with Beer Tasting	

Tuesday, 13th of June

	Ford Hall	Generali Hall
8:30–9:00	Registration	
09:00–10:00	Atsuko Shono Keynote Talk	
10:00–10:30	Poster Pitches	
10:30–11:15	Poster Session + Coffee	
11:15–13:00	Oral Session Other Applications	
13:00–14:00	Lunch	
14:00–15:30	Oral Session Brain & Nerve	
15:30–16:30	Workshop Lung Perfusion Color	Poster Session + Coffee
16:30–17:00	EIT Steering Comitee	Poster Session + Coffee
17:00–18:45	City Tour (optional)	
18:45–22:00	Dinner	

Wednesday, 14th of June

	Ford Hall	Generali Hall
8:00–9:00	Registration	
09:00–10:30	Oral Session Algorithms	Clinical Workshop on EIT
10:30–11:00	Poster Session + Coffee	Coffee
11:00–11:15	Poster Session + Coffee	Clinical Workshop on EIT
11:15–13:00	Oral Session Algorithms	Clinical Workshop on EIT
13:00–14:00	Lunch	
14:00–15:00	Oral Session Bio Impedance	
15:00–15:30	Closing	

Presentations

Session Thorax - Monday

Session Chair - Inéz Frerichs and Knut Möller

11:30-11:45	Pulmonary monitoring with wearable electrical impedance tomography and lung sound registration: a pilot clinical investigation <u>Inéz Frerichs</u> , Rita Paradiso, Vassilis Kilintzis, Bruno M. Rocha, Fabian Braun, Michaël Rapin, Laura Caldani, Nicolaos Beredimas, Romanos Trechlis, Sander Suursalu, Claas Strodthoff, Diogo Pessoa, Rui P. Paiva, Nicolaos Maglaveras, Norbert Weiler, Josias Wacker and Zhanqi Zhao
11:45-12:00	RecruitmEnt Assessed by eleCtRical Impedance Tomography (RECRUIT) <u>Annemijn Jonkman</u> , Glasiela Alcala, Bertrand Pavlovski, Oriol Roca, Savino Spadaro, Lu Chen, Jose Dianti, Mayson de Araújo Sousa, Michael Sklar, Gaetano Scaramuzzo, Thomas Piraino, Huiqing Ge, Guang-Qiang Chen, Jian-Xin Zhou, Ewan Goligher, Eduardo Costa, Jordi Mancebo, Tommaso Mauri, Marcelo Amato and Laurent Brochard
12:00-12:15	The effect of anti-inflammatory therapy on compliance, alveolar overdistension and collapse in EIT guided PEEP: MaastricCht cohort <u>SJH Heines</u> , E Aydeniz, BCT van Bussel, MCG van de Poll, ICC van der Horst, DCJJ Bergmans
12:15-12:30	Observatory study of end-expiratory lung volume and stroke volume changes during obstructive sleep-breathing disordered events <u>Thi Hang Dang</u> and Tong In Oh
12:30-12:45	Monitoring Induction of General Anaesthesia <u>Silke Borgmann</u> , Kim Linz, Sara Lozano, Johannes Schmidt, Sashko Spassov, Christin Wenzel, Stefan Schumann
12:45-13:00	Correlation between hypertonic saline transit time measured with EIT and cardiac output <u>M. Leali</u> , E. Spinelli, A. Damia, I. Marongiu, M. Battistin, S. Oldoni, Z. Zhao, S. Gatti, T. Mauri
14:00-14:15	Comparison of phrenic nerve stimulated breathing to mandatory ventilation using EIT in a pig model <u>Dmitrij Ziles</u> , Matthias Manfred Deininger, Teresa Seemann, Arnhold Lohse, Carl-Friedrich Benner, Marian Walter, Steffen Leonhardt, Thomas Breuer
14:15-14:30	V/Q analysis with 3D EIT <u>Joaquin Araos</u> , Symon Stowe, Andy Adler
14:30-14:45	A model of a rat thorax with a two-compartmental lung surrogate <u>Silke Borgmann</u> , Patryk Dzierzawski, Bernd Flamm, Sashko Spassov, Christin Wenzel, Stefan Schumann

Session Hardware - Monday

Session Chair - Richard Bayford

17:00-17:15	Development of a Wide-bandwidth FPGA-based EIT System with Multi-tone Implementation for Medical Imaging in Space <u>Kendall Farnham</u> and Ryan Halter
17:15-17:30	Preliminary Human-Subject Results of ACT5 EIT System Omid Rajabi Shishvan, Nilton Barbosa da Rosa Junior, Gary J. Saulnier, Jennifer Mueller, Jonathan C. Newell, David Isaacson
17:30-17:45	Towards intraoperative surgical margin assessment: Validation of an electrical impedance-based probe with ex vivo bovine tissue <u>Allaire Doussan</u> , Ethan Murphy, and Ryan Halter
17:45-18:00	Expandable EIT Electrode Array for Human Vagus Nerve <u>Ahmad Shah Idil</u> , David Holder and Kirill Aristovich

Session Other Applications - Tuesday

Session Chair - Zhanqi Zhao

11:15-11:30	Electrical Impedance Mapping For Precision Pedestrian Navigation <u>Shubhanshu Sharma</u> , Kazi Javed Akram, Bobby George
11:30-11:45	Variational in-silico tissue modelling using two-path impedance spectroscopy and normalizing flows <u>Benjamin Schindler</u> , Dorothee Günzel, Thomas Schmid
11:45-12:00	The feasibility to track the inhaled drugs delivery with electrical impedance tomography <u>Zhe Li</u> , Yibo Zhu, Zhangjun Tan, Yuan Gao and Zhanqi Zhao
12:00-12:15	Rapid Patient-Specific FEM Meshes from 3D iPhone Scans <u>Ethan Murphy</u> , Ryan Halter, and Seward Rutkove
12:15-12:30	Integrated Ultrasound and EIT for Improved Kidney Stone Detection <u>Kendall Farnham</u> , Ethan Murphy, and Ryan Halter
12:30-12:45	Modelling uterine geometry via electrical impedance tomography <u>Simon Ghionea</u> , Barry Belmont, Anjali Sehrawat, Michael Barbour, Zichao Wen, Yong Wang, and Matthew D Keller

Session Brain & Nerve - Tuesday

Session Chair - David Holder

14:00-14:15	Imaging circuit activity in the rat brain with an intracortical probe and fast neural EIT <u>Adam Fitchett</u> , Karolina Kozenauskaite, Jason Fabbri, Justin Hu, Kenneth Shepard, David S. Holder and Kirill Aristovich
14:15-14:30	Modelling of Neural Imaging with Magnetic Detection EIT (MDEIT) <u>Kai Mason</u> , Kirill Aristovich and David Holder
14:30-14:45	Electrical Impedance Tomography to Assess Pulmonary Function in Amyotrophic Lateral Sclerosis Patients <u>Allaire Doussan</u> , Ethan Murphy, Courtney McIllduff, Soleil Samaan, Hilda Guittierrez, Chebet Yator, Sarah Verga, Sophie Lloyd, Christy Smith, Sean Levy, Elijah Stommel, Seward Rutkove and Ryan Halter
14:45-15:00	Application of Capacitively Coupled Electrical Impedance Tomography (CCEIT) in Brain Imaging <u>Yandan Jiang</u> , Manuchehr Soleimani and Baoliang Wang
15:00-15:15	Towards the electrical impedance tomography for detection and classification of tumours in human brain <u>Yahor Zaikou</u> , Danny Echtermeyer, Angelina Nazarenus, Tammam Abboud and Uwe Pliquet

Session Algorithms - Wednesday

Session Chair - Rosalind Sadleir and Andy Adler

09:00-09:15	Chest EIT Based on Lagrange Multipliers Method <u>Nima Seifnaraghi</u> , Andreas Demosthenous and Richard Bayford
09:15-09:30	Total Cardiac Vector Reconstruction Using EIT and ECG Data <u>Christopher Wilcox</u> , Nilton Barbosa da Rosa Junior, Jennifer Mueller, Jonathan Newell, Gary Saulnier, Omid Rajabi Shishvan and David Isaacson
09:30-09:45	Planar Signal Flow as Metric for EIT Perfusion Analysis <u>Diogo Silva</u> and Steffen Leonhardt
09:45-10:00	Computational Uncertainty Quantification for parametrized Magnetic Resonance Electrical Impedance Tomography Kenneth Scheel, Babak Maboudi Afkham and Kim Knudsen
10:00-10:15	High-accuracy impedance tomography enabled by time-of-flight EIT (TOF-EIT): a feasibility study Florenca Maurino Alperovich, Enrico Ravagli, David Holder and Kirill Aristovich
10:15-10:30	Iterative Multi-Layer Perceptron with Smoothing Regularization for Electrical Impedance Tomography Inversion <u>Zhe Liu</u> , Zhou Chen and Yunjie Yang

11:15-11:30	Introducing an inter-model helps decreasing the degrees of freedom in EIT inverse problem <u>Rongqing Chen</u> , Alberto Battistel, Sabine Krüger-Ziolek, Stefan J. Rupitsch and Knut Möller
11:30-11:45	Sensitivity-Volume Figure of Merit for EIT Measurement Selection <u>Claire Onsager</u> , Chulin Wang, Charles Costakis, Can Aygen, Lauren Lang, Suzan van der Lee and Matthew A Grayson
11:45-12:00	Resolution as a function of Stimulation and Measurement Patterns Andy Adler and Zhanqi Zhao
12:00-12:15	Reciprocity in electromagnetic systems Andy Adler and William R.B. Lionheart
12:15-12:30	On the required number of electrodes in an EIT-related problem <u>Andrej Brojatsch</u> and Bastian Harrach
12:30-12:45	Separation of ventilation and cardiac related signals from thoracic EIT image streams using Empirical Mode Decomposition <u>Alfred Hülkenberg</u> and Steffen Leonhardt
12:45-13:00	Machine learning based breast cancer classification algorithm in an Electrical Impedance Tomography set up <u>Jöran Rixen</u> , Nico Blass and Steffen Leonhardt

Session Bio Impedance - Wednesday

Session Chair - Uwe Pliquet

14:00-14:15	Determining the accuracy of the smart brace measuring knee swelling using bioimpedance analysis (BIA) Rebecca Gilsing, Maartje Hoozeveld, Heleen Boers and Walter van der Weegen
14:15-14:30	Characterizing novel phantom materials for biomedical applications of electrical impedance tomography <u>Anjali Sehrawat</u> , Barry Belmont, Simon Ghionea, and Matthew D Keller
14:30-14:45	In-Vivo Characterization of Oral Lesion Using Electrical Impedance <u>Sophie Lloyd</u> , Torri Lee, Allaire Doussan, Ethan Murphy, Joseph Paydarfar, Ryan Halter

List of Posters

Poster Pitches - Monday

Bedside detection of right-to-left intracardiac shunt

Huaiwu He, Long Yun and Zhanqi Zhao

Perioperative Non-invasive Hemodynamic and Respiratory Monitoring using Electrical Impedance Tomography

You Jeong Jeong, Hee Yong Kang, Ann Hee You, Tong In Oh

Open source software for analysis of chest EIT data acquired during spontaneous breathing and respiratory manoeuvres

Claas Strodthoff and Inéz Frerichs

Respiratory Rate Monitoring in ICU patients and healthy volunteers using EIT: A validation study

J. Wisse-Smit, T. Goos, A. Jonkman, H. Endeman, I. Reiss, D. Gommers

Predicting spirometry indicators using EIT for lung disease patients

Fedi Zouari, Wang C. Kwok, Adrien Touboul, Pak To Cheung, Venice Sin, Eddie C. Wong, Iris Y. Zhou, Terence C. C. Tam, Russell W. Chan

Regional ventilation in healthy and COPD during breathing exercises

Lin Yang, Meng Dai, Yifan Liu, Feng Fu and Zhanqi Zhao

Functional image of separated ventilation and cardiac activity in EIT

Alberto Battistell, Rongqing Chen, Erik Stein, Noël Hallemans, Knut Möller

Regional ventilation characteristics in infants after liver transplantation: A pilot study

Xiaolan Chen, Chen Chen, Leiqin Gao, Yuan Gao, Yuxiao Deng, Zhe Li and Zhanqi Zhao

Electrical impedance tomography and ultrasound tomography for lung imaging

Manuchehr Soleimani and Tomasz Rymarczyk

EIT-based synchronized positive pressure ventilation in newborns

Andy Adler, Andreas D Waldmann, Christoph M Rüegger

Peripheral vascular impedance imaging of palmar digital arteries

Gia-Bao Ha, Fernando Guevara Vasquez, Benjamin Sanchez

3D Gastric Content Visualization (GCV) by Gastric Electrical Impedance Tomography (gEIT) with Dual-Step Fuzzy Clustering

P.N. Darma and M. Takei

Assessment of Physiological Oedema on Human Calf by Sparse Bayesian Learning Electrical Impedance Tomography (SBL-EIT)

Ryoma Ogawa, Shinsuke Akita, and Masahiro Takei

Feasibility Study of Monitoring Swallowing with Electrical Impedance Tomography (EIT)

Ardra Venugopal, Marcin J. Kraśny, Niall Colgan

Simple Steps to Characterise a Conductivity Measurement Probe for Bio-impedance Applications

Marcin J. Kraśny, Hamza Benchakroun, Niko Istuk, Declan O'Loughlin, Adnan Elahi, Atif Shahzad, Martin O'Halloran and Eoghan Dunne

Precision of Data-Driven Methods for Image Reconstruction of Experimental EIT Measurements

Jacob Peter Thönes, Lisa Krukewitt and Sascha Spors

Neural Networks for Classification of Breast Tissue Using EIT Voltage Data

Emily Corcoran and Sarah Hamilton

Poster Pitches - Tuesday

A novel combination of pre-processing methods for electrical impedance tomography data

J. Wisse-Smit, T. Goos, A. Jonkman, H. Endeman, I. Reiss and D. Gommers

Low-rank and sparse recovery of lung EIT signals corrupted by motion artifacts using robust PCA

Lin Yang, Meng Dai, Yifan Liu, Feng Fu and Zhanqi Zhao

3D EIT Image Reconstruction Based on Point Cloud Network

Zhou Chen, Zhe Liu and Yunjie Yang

Data Compensation for Poor Electrode Contact in Electrical Impedance Tomography Based on CNN-LSTM Model

Jialun Li, Meng Dai, Shuhong Wang and Feng Fu

Separation of ventilation and cardiac activity on recorded voltages before EIT image reconstruction

Alberto Battistel, Erik Stein, Rongqing Chen and Knut Möller

Distinguishability and Noise in the Sensitivity-Volume EIT Method

Claire Onsager, Chulin Wang, Charles Costakis, Can Aygen, Lauren Lang, Suzan van der Lee, Matthew A Grayson

Using Machine Learning to Detect Prostate Cancer intraoperatively: A Simulation Study

Kofi Odame, Ethan Murphy and Ryan Halter

A Deep Neural Network for a Hemiarrray EIT System

Mason Manning, Nicholas Wharff, Shelby Horth, Jacob Roarty, Malena I. Español and Rosalind Sadleir

Wearable EIT Systems with Central Powering

Josias Wacker, Michaël Rapin, Fabian Braun, Olivier Chételat

Peripheral vein scanner using Electrical Impedance Tomography

Miguel-Ángel San-Pablo-Juárez and Dulce-María Orozco-Corona

HDF5-based data format for EIT data

Lucas Possner, Martin Bulst, Andy Adler

Evaluating high-channel electrical impedance tomography

Barry Belmont, Simon Ghionea, Anjali Sehwat and Matthew D Keller

Development of multifrequency device for bioimpedance

Alberto Battistel, Hegoa Craamer Lizarraga, Maite Termenon, Knut Möller

The Entry-Level Electrical Impedance Tomography (EIT) Device You can Assemble without Soldering!

Marcin J. Kraśny, Ross Creaven, Ardra Venugopa, Eoghan Dunne and Niall Colgan

Shape tracking with mutual inductance from an array of coils

Gavin Dingley, Emanuela Semaj, Maria Petrou, and Manuchehr Soleimani

Pulmonary function in early Parkinson's disease measured with EIT

Chenxi Zhang, Jia Deng, Hongying Jiang and Zhanqi Zhao

A Pilot Study on Brain EIT Monitoring in External Lumbal Drainage

Bin Yang, Shijie Hu, XueChao Liu, Meng Dai and Feng Fu

EIT Measurement of Regional Ventilation Distribution in Premature Neonatal Patients with Apnoea

Joseph Omisanya, Song Wen, Rebecca Yerworth and Richard Bayford

Congress Venue and Arrival

City of Aachen

Aachen, traditionally known as Aix-la-Chapelle, is a border-town city in North Rhine-Westphalia in the triangle between Belgium, the Netherlands and Germany. The westernmost city in Germany once was known as the roman spa resort Aquae Granni. During the middle ages, Aachen was the residence for Charles the Great and later coronation place for the German kings and thus, has a large and interesting history. Nowadays, Aachen states as a center of research and technology and hosts one of the leading universities of technology in Germany. Therefore, Aachen is a great choice for hosting the 23rd International Conference on Biomedical Applications of Electrical Impedance Tomography and we are very happy to invite you, to be part of this exciting event.



Congress Center

The conference will take place at the **Super C Congress Center** of RWTH Aachen University. More specifically, both the **Generali Hall** and **Ford Hall** are located there on the 6th floor. Coffee breaks and lunches will be offered in the foyer of the Congress Center. The venue is located at RWTH Aachen University, Templergraben 57, 52062 Aachen, Germany.

Travel Information

Arriving by airplane: The closest airports are Düsseldorf Airport or Cologne Bonn Airport. We recommend Düsseldorf Airport due to better flight and train connections.

Train Informations: There is a direct connection between Düsseldorf Airport and Aachen Hauptbahnhof. The Regional-Express 1 (RE1) travels between 05:32 and 23:32 on a hourly basis. Please note, that the railway station in Düsseldorf is "Düsseldorf Flughafen" and not "Düsseldorf Airport terminal train station". A SkyTrain connects the Airport with the train station. The train from Düsseldorf Airport to Aachen Hauptbahnhof takes 1:35 h.

Further information on connections and ticketing can be found at www.bahn.de.

We offer free WiFi to all participants during the entire congress via **Eduroam**.

We encourage everyone to use **Eduroam** at the venue.

However, if you do not have Eduroam access, there is a guest access for WiFi during the conference:

WiFi Guest-Access

Login:	EIT2023
Password:	linafuha
Validity:	2023-06-12 - 2023-06-14

Login:

- Connect to WiFi network "RWTH-guests" then:
 - Scan this QR code
- OR
- Visit any website (e.g. example.net)
 - You will be redirected to the guest login
 - Login with above credentials



Scan QR code for
automatic login
when connected to
RWTH-guests

David S. Holder



David Holder has had a joint training in Clinical Medicine and Biophysics. As a medical student, X-ray CT was just being developed. He became interested in adapting inverse tomographic imaging methods for imaging fast electrical neural activity in the brain or nerve. In 1982, he interrupted his medical career to plan this and undertook a Master's degree in Biophysics at the University of California Berkeley, USA. He came up with the idea of achieving this with the then new technique of EIT. Since then, he has been working on this at University College London where he is consultant in Clinical Neurophysiology undertaking EMG and EEG which provides a secure platform to undertake the challenging and high risk goal of developing neural EIT in an interdisciplinary group in Bioengineering and Neurophysiology in Medical Physics.

His keynote talk will be an overview of fast neural Electrical Impedance Tomography for imaging fast electrical activity over milliseconds in the brain or in peripheral nerve. The original vision was that it could be undertaken non-invasively in humans with EEG-type scalp electrodes but this is not currently possible because the resistive skull diverts current so the signal-to-noise ratio is too

small. He will review completed work showing it can produce validated fast neural images of activity over milliseconds in brain and nerve, at the expense of needing intracranial or nerve cuff electrodes. He will then present current studies which aim to improve coverage in brain EIT with depth electrode adapted for impedance measurement, to obviate the need for intracranial electrodes by recording with atomic magnetometers, achieve absolute EIT with time-of-flight recording, and image localised fascicular activity in the cervical vagus nerve to allow targeted vagal nerve stimulation and so avoid unwanted side-effects.

Atsuko Shono

Atsuko Shono is a Japanese intensivist at Shimane university hospital in Izumo, Shimane, Japan. She has been working in the intensive care unit for about two decades after specialization in Anesthesiology. Her work focuses specifically on the respiratory management and clinical research using EIT in ICU. Atsuko Shono spent 2 years (2013-2015) in Rotterdam for studying EIT research, since then she kept researching EIT in Japan. Recently, she is actively working in introducing EIT monitoring in seminars and congresses held in Japan to spread its use in ICU. Her working place, Izumo city, is located at west part in Japan facing Japan Sea and famous as a historical place. It is mentioned in historical record of ancient matters that all the Gods in Japan come together once a year and discuss about the future of Japan at big shrine called “Izumo Oyashiro”.

Nowadays not only in research field but also in clinical practice, the application of EIT become more common. In Japan, EIT use in clinical practice was approved by PMDA eventually last year and many intensivists show interests in using EIT for the respiratory management. The next challenge is whether EIT can contribute to the better patient outcome. Atsuko Shono's keynote talk will focus on how EIT can provide useful information leading to a better choice of therapeutic strategy. The background of critically ill patients vary patient by patient and their clinical conditions change day by day. The intensivists are facing diverse clinical questions which are unpredictable and needed to be addressed in real-time without delay. She would like to introduce the utilization of EIT trying to seek answers for decision-making through some clinical cases in this lecture.



Thomas Muders



Dr. Thomas Muders graduated from medical school at the Rheinische-Friedrich-Wilhelms-Universität Bonn in 2003. In the same year, he became a research associate and assistant physician at the Department of Anesthesiology and Intensive Care Medicine at Bonn University Hospital. In 2008 he received his doctorate and became a specialist in anesthesiology. He then continued his clinical and experimental research as a postdoctoral researcher. Since 2012, he has been working there as a senior attending in intensive care medicine.

His experimental research involves different animal models of lung injury and ARDS, functional imaging of the lung using computed tomography (CT), single-photon emission computed tomography (SPECT), and electrical impedance tomography (EIT) for individual optimization of mechanical ventilation, examination of regional lung mechanics, regional ventilation and perfusion distribution, and pulmonary gas exchange. Muders authored and co-authored over 80 scientific works including book chapters, journal

papers and conference contributions. He is active in various scientific societies, such as the Deutsche Gesellschaft für Anästhesiologie und Intensivmedizin (DGAI) and the Deutsche Interdisziplinäre Vereinigung für Intensivmedizin (DIVI).

Muders's keynote talk at EIT 2023 will cover the topic of "Recent Advances on Lung Perfusion Imaging using EIT". He will show how EIT can be used for bedside monitoring of regional lung perfusion and gas exchange in critically ill patients. He will present different algorithmic approaches how to extract lung perfusion from pulsatile- and bolus-related EIT-signals and methodological validation studies in animals comparing EIT, CT, and SPECT. In addition, the technical challenges that arise when transferring findings from animal experiments to clinical application are outlined.

Workshops

DICOM for EIT

- Date: 12.06.2023
- Coordination: Prof. Bayford

With EIT starting to be used in routine clinical practice, it's important that the clinically relevant information is portable between hospital data management systems. DICOM formats are widely used clinically and cover many imaging modalities, though not specifically EIT. DICOM (dicom.nema.org) is recognised internationally as the standard to adhere to for many imaging modalities, each with one or more Information Object Definitions (IODs), built mainly from agreed standard building blocks. This workshop aims to create a draft consensus EIT DICOM specifications.

Color me beautiful – developing a Consensus Recommendation for EIT-based Ventilation / Perfusion Imaging

- Date: 13.06.2023
- Coordination: Prof. Putensen and Prof. Leonhardt

For medical EIT, there are many different ways to represent ventilation and perfusion information. In this workshop different approaches for presenting these information will be discussed and we will try to find a common consensus. The discussion will be opened by three short impulse keynotes (<5min), followed by an open debate. Everyone interested is welcome to participate, no additional sign-up is necessary.

Electrical Impedance Tomography for Cardiopulmonary Function

- Date: 14.06.2023
- Coordination: Prof. Putensen, Prof. Leonhardt, Prof. Frerichs

Parallel to the EIT2023 conference, a clinical workshop for clinical newcomers to electrical impedance tomography will be offered on 14.06.2023 from 9:00 – 13:00 at the SuperC Congress Center in Aachen.

The workshop will consist of the following three lectures:

- Physical and Technical Basics of Electrical Impedance Tomography (Prof. Leonhardt, RWTH Aachen)
- Clinical Electrical Impedance Tomography Metrics (Prof. Frerichs, UK Schleswig-Holstein)
- Current Clinical Applications of Electrical Impedance Tomography (Prof. Putensen, UK Bonn)

This will be followed by Hands-on Demonstrations using:

1. Water tanks
2. Electrical torso phantom, simulator, or equivalent
3. Healthy volunteers

The workshop is free of charge and everyone interested is welcome to participate, regardless of conference participation. Everyone who wants to participate, including conference participants, has to register. You can also optionally attend the lunch after the workshop, for this we have to take a fee of 10€, if you have not registered for the conference. Coffee and cookies during the coffee break are free. This workshop is recognized by the Medical Association of North Rhine (ÄkNo, Ärztekammer Nordrhein, Anerkennung als offizielle Fortbildungsveranstaltung) and attributed with 4 credit points.

Social Program

Welcome Reception

Monday, 12th of June

At the end of the first conference day we will offer a beer tasting event sponsored by Sciospec. This will take place at the conference location.

Guided City Tour

Tuesday, 13th of June

A Guided City Tour of the historic city centre of Aachen will be offered. The Guided City Tour will start at the conference site (SuperC) and will directly lead to the Conference Dinner location.

Conference Dinner

Tuesday, 13th of June

The Conference Dinner will take place at the ball room of the "Altes Kurhaus". It is beautiful location in the center of Aachen. The Conference Dinner is included in the registration fee.

Address: Altes Kurhaus, Komphausbadstr. 19, 52062 Aachen, Germany

Sponsors



Dräger

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