

## **POSTERS WITH PITCH**

### OP1 - Al-integrated Microwave Antenna System for Detection of Acute Respiratory Distress Syndrome (ARDS)

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### OP2 - CT Data Harmonization And Image Quality Enhancement For Lung Nodule Segmentation And Detection

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### OP3 - Förstå Tal

**Birger Moell<sup>1</sup>**, Fredrik Sand Aronsson<sup>2</sup>, Per Östberg<sup>2</sup>, Jonas Beskow<sup>1</sup> <sup>1</sup> KTH, <sup>2</sup> KI

### OP4 - Identification of Renal Function Progression Trajectories on Patients with Proton Pump Inhibitor and Histamine-2 Receptor Blocker Therapies

*Kaile Chen*<sup>1, 2</sup>, *Farhad Abtahi*<sup>1, 2, 3</sup>, *Hong Xu*<sup>4</sup>, *Juan-Jesus Carrero*<sup>5</sup>, *Carlos Fernandez-Llatas*<sup>6</sup>, *Fernandez-Llatas Seoane*<sup>1, 3, 7, 8</sup>

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## OP5 - Precision Kidney Medicine based on Advanced Optical Imaging and Deep Learning Segmentation

**David Unnersjö-Jess<sup>1, 2, 3, 4, 5,** Robin Ebbestad<sup>6</sup>, Arash Fatehi<sup>2</sup>, Bernhard Schermer<sup>2, 3</sup>, Sigrid Lundberg<sup>7</sup>, Hannes Olauson<sup>5</sup>, Thomas Benzing<sup>2, 3</sup>, Hans Blom<sup>1</sup>, Katarzyna Bozek<sup>2</sup>, Hjalmar Brismar<sup>1, 6</sup></sup>

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## OP6 - Bone structure, composition, and osseointegration in a leptin receptor-deficient rat as a model of human metabolic syndrome

*Martina Jolic*<sup>1</sup>, *Chiara Micheletti*<sup>1, 2</sup>, *Peter Thomsen*<sup>1</sup>, *Kathryn Grandfield*<sup>2, 3, 4</sup>, *Furqan Shah*<sup>1</sup>, *Anders Palmquist*<sup>1</sup> <sup>1</sup> Department of Biomaterials, Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

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### **OP7 - Electrical characterization of barrier integrity in a gut-on-chip**

Sofia Johansson<sup>1</sup>, Mara Lucchettr<sup>2</sup>, Gabriel Werr<sup>2</sup>, Laurent Barbe<sup>1</sup>, Paul Wilmes<sup>2</sup>, Maria Tenje<sup>1</sup>

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## OP8 - Modulating Dynamic Crosslinking for Enhanced 3D Bioprinting of Hyaluronic Acid Hydrogels

**Oommen Varghese<sup>1</sup>**, Shima Tavakoli<sup>1</sup>, Hamidreza Mokhtari<sup>1</sup>

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### OP9 - Monetite-based bioceramics for bone repair and regeneration – Where do we go now?

*Martina Jolic*<sup>1</sup>, Omar Omar<sup>1</sup>, Håkan Engqvist<sup>2</sup>, Thomas Engstrand<sup>3</sup>, Anders Palmquist<sup>1</sup>, Furqan Shah<sup>1</sup>, Peter Thomsen<sup>1</sup>

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### OP10 - Resorbable antibacterial wound dressing using Ag/SiO2 nanoparticles

Reshma Ramachandran<sup>1</sup>, Georgios Sotiriou<sup>1</sup>

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## OP11 - Soft hydroxyapatite composites based on triazine-trione systems as potential biomedical engineering frameworks

*Jinjian Lin<sup>1</sup>, Yanmiao Fan<sup>1</sup>, Daniel J. Hutchinson<sup>1</sup>, Michael Malkoch<sup>1</sup>* <sup>1</sup> KTH Royal Institute of Technology, Department of Fibre and Polymer Technology, Stockholm, Sweden

## OP12 - Hemodynamic assessment of the Realheart® Total Artificial Heart using a Hybrid Mock Loop

## **Emanuele Perra**<sup>1</sup>, Nils Brynedal Ignell<sup>2</sup>, Shaikh Faisal Zaman<sup>2</sup>, Thomas Finocchiaro<sup>2</sup>, Ina Laura Perkins<sup>2</sup>, Seraina Anne Dual<sup>1</sup>

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#### **OP13 - Sampling through a transvascular working channel**

*Mikael Sandell*<sup>1, 2, 3</sup>, Arvin Chireh<sup>2</sup>, Argyris Spyrou<sup>1, 3</sup>, Stefan Jonsson<sup>1</sup>, Wouter van der Wijngaart<sup>1</sup>, Göran Stemme<sup>1</sup>, Niclas Roxhed<sup>1, 3</sup>, Staffan Holmin<sup>2</sup>

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- <sup>2</sup> Karolinska Institutet
- <sup>3</sup> MedTechLabs

## OP14 - A Robust Method for Automatic Calculation of Hypotension During Surgery using Physiological Sensor Data

Martin Jacobsson<sup>1</sup>, Max Bell<sup>2</sup>, Arman Valadkhani<sup>2</sup>, Thorir Sigmundsson<sup>2</sup>

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- <sup>2</sup> Karolinska University Hospital

### OP15 - Measurements of balance using a smartphone - A pilot study

Helena Grip<sup>1, 2</sup>, Fredrik Öhberg<sup>1, 2</sup>

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<sup>2</sup> Strålningevetenskaper, Umeå universitet

### OP16 - Empowering Elderly Cancer Survivor Care through Digital Health Innovations: An Overview of the LifeChamps Project

Farhad Abtahi<sup>1</sup>, Antonis Billis<sup>2</sup>, Fernando Seoane<sup>1, 3</sup>, Panos Papachristou<sup>4, 5</sup>, Panagiotis Bamidis<sup>2</sup>

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<sup>5</sup> Department of Neurobiology, Care Science and Society, Division of Family Medicine and Primary Care, Karolinska Institutet, Stockholm, Sweden

## OP17 - En "mockup" för att underlätta utvecklingsarbetet av ett medicintekniskt instrument som detekterar cancer på ytan av prostatakörteln.

Karolina Jonzén<sup>1, 2</sup>, Göran Mannberg<sup>1, 2</sup>, Tomas Bäcklund<sup>1, 2</sup>, Urban Edström<sup>1, 2</sup>, Olof Lindahl<sup>1, 2</sup>

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### **OP18 - Filter-in-Centrifuge Separation of Low-concentration Bacteria from Blood**

Mohammad Osaid<sup>1</sup>, Kaiyang Zeng<sup>1</sup>, Wouter van der Wijngaart<sup>1</sup>

<sup>1</sup> KTH Royal Institute of Technology

### OP19 - Targeting brain tumours with radiolabelled chlorotoxin, a scorpion venom peptide

**Iman Zafar<sup>1</sup>**, Kaj Y. Li<sup>1</sup>, Karl H. Pettersson Pettersson Palm<sup>1</sup>, Jacqueline Zammit<sup>2</sup>, Maria Davydova<sup>2</sup>, Mukesh Varshney<sup>3</sup>, Li Lu<sup>1</sup>, Stefan Milton<sup>1</sup>, Thuy A. Tran<sup>1</sup>, Tobias Bergstrom<sup>4</sup>, Fredrik J. Swartling<sup>4</sup>, Jason S. Lewis<sup>2</sup>, Staffan Holmin<sup>1</sup>, Jeroen A.C.M. Goos<sup>1</sup>

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### **OP20 - Carotid ultrasound image denoising using low-to-high image quality domain adaptation** *Mohd Usama*<sup>1</sup>, *Arash Saboori*<sup>1</sup>, *Christer Grönlund*<sup>1</sup>

<sup>1</sup> Department of Radiation Sciences, Biomedical Engineering, Umeå University, Umea, Sweden

### OP21 - Lung cancer diagnosis and prognosis with advanced machine learning methods

Mehdi Astaraki<sup>1, 2, 3</sup>, Chunliang Wang<sup>1</sup>, Örjan Smedby<sup>1</sup>, Iuliana Toma-Dasu<sup>1</sup>

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<sup>3</sup> Stockholm University, Division of Medical Radiation Physics, SE10691 Stockholm, Sweden

### OP22 - A sensor based rotational system for detection of prostate cancer during surgery

**Olof Lindahl<sup>1</sup>**, András Gorzsás<sup>2</sup>, Anders Bergh<sup>3</sup>, Britt Andersson<sup>4</sup>, Börje Ljungberg<sup>5</sup>, Tomas Bäcklund<sup>1</sup>, Urban Edström<sup>1</sup>

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- <sup>4</sup> Applied Physics and Electronics, Umeå University, Umeå
- <sup>5</sup> Surgical and Perioperative Sciences, Urology and Andrology, Umeå University, Umeå

### OP23 - Innovative Approaches to Burn Degree Analysis: Non-invasive Microwave Sensor Design and Dielectric Profiling of Ex-Vivo Burnt Human Skin Samples

**Pramod K B Rangaiah**<sup>1</sup>, Bappaditya Mandal<sup>1</sup>, Mauricio David Perez<sup>1</sup>, Fredrik Huss<sup>2</sup>, Robin Augustine<sup>1</sup> <sup>1</sup> Microwaves in Medical Engineering Group, Division of Solid State Electronics, Department of Electrical Engineering, Uppsala University, Box 65, SE-751 03 Uppsala, Sweden.

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### **OP24 - Intrabody Communication Through Fat Tissue for Brain-Machine Interface Applications**

Johan Engstrand<sup>1</sup>, Pramod Rangaiah<sup>1</sup>, Ted Johansson<sup>1</sup>, Mauricio D. Perez<sup>1</sup>, Robin Augustine<sup>1</sup>

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# OP25 - Microneedle-based wearable platforms toward minimally invasive glycine/lactate monitoring

### Qianyu Wang<sup>1</sup>

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### **OP26 - Microwave-Based Planar Methods for Non-Invasive Intracranial Pressure Monitoring:** Review and Directions

Mauricio Perez<sup>1</sup>, Danilo Brizi<sup>2</sup>, Agostino Monorchio<sup>2</sup>, Ander Lewén<sup>3</sup>, Robin Augustine<sup>1</sup>

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<sup>2</sup> Department of Information Engineering, Pisa University, Italy.

<sup>3</sup> Neurosurgery, Department of Medical Sciences, Uppsala University, Sweden

### OP27 - Mikrovågsbaserad diagnostik av bristning i hamstringsmuskeln orsakad av idrott

Laura Guerrero Orozco<sup>1</sup>, Andreas Fhager<sup>1</sup>

<sup>1</sup> Chalmers university of technology

### OP28 - Mikrovågsbaserat system för detektion av trauma i skalle, bröst och buk

August Ekman<sup>1</sup>, Mikael Persson<sup>1</sup>, Andreas Phager<sup>1</sup>

<sup>1</sup> Chalmers Tekniska Högskola

# OP29 - Next generation MEMS-based metal oxide gas sensors on a thin silicon layer of SOI substrate enabling exhaled breath analysis

### Hithesh K Gatty<sup>1</sup>

<sup>1</sup> GattyInstruments AB, Green Innovation park, Ulls väg 29c, 75651 Uppsala

### OP30 - Standalone microwave device to screen for poor muscle quality

*Viktor Mattsson*<sup>1</sup>, *Bappaditya Mandal*<sup>1</sup>, *Mauricio D. Perez*<sup>1</sup>, *Robin Augustine*<sup>1</sup> <sup>1</sup> Division of Solid State Electronics, Department of Electrical Engineering, Uppsala University

## OP31 - Fat-intrabody Communication Empowering Wearable Devices: The H2020 SINTEC Milestone

*Mauricio Perez*<sup>1</sup>, Laya Joseph<sup>1</sup>, Pramod Rangaiah<sup>1</sup>, Bappaditya Mandal<sup>1</sup>, Robin Augustine<sup>1</sup>

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## POSTERS

**P32 - Application of information mining technologies to the study of chronic diseases: A systematic review** *Kaile Chen*<sup>1, 2</sup>, *Farhad Abtahi*<sup>1, 2, 3</sup>, *Juan-Jesus Carrero*<sup>4</sup>, *Carlos Fernandez-Llatas*<sup>5</sup>, *Fernando Seoane*<sup>1, 3, 6, 7</sup>

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### P33 - Classification of Brain Tumour Tissue in Histopathology Images Using Deep Learning

Christoforos Spyretos<sup>1, 2</sup>, Iulian Emil Tampu<sup>1, 3</sup>, Anders Eklund<sup>1, 3, 2</sup>, Neda Haj-Hosseini<sup>1, 3</sup>

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### P34 - Machine Learning Algorithm to Assess Muscle from Microwave Sensor Data

Viktor Mattsson<sup>1</sup>, Bappaditya Mandal<sup>1</sup>, Mauricio D. Perez<sup>1</sup>, Robin Augustine<sup>1</sup>

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### P35- Antimicrobial activity of flame-made Ag/SiO2 nanoparticles

*Maria Samara*<sup>1</sup>, Vasiliki Tsikourkitoudi<sup>1</sup>, George A. Sotiriou<sup>1</sup> <sup>1</sup> Department of Microbiology, Tumor and Cell Biology, Karolinska Institutet

### P36- Highly biocompatible Mg-Ca alloy with enhanced bioactivity towards bone regeneration

Niccoló De Berardinis<sup>1</sup>, Andrea Rich<sup>2</sup>, Cecilia Persson<sup>1</sup>, Jörg Löffler<sup>2</sup>, Gry Hulsart Billström<sup>1, 3</sup>

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## P37- Edu-Mphy: A Low-Cost Multi-Physiological Recording System for Education and Research in Healthcare and Engineering

Abdelakram HAFID<sup>1</sup>, Saad abdullah<sup>1</sup>, Annica kristoffersson<sup>1</sup>

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### P38- Real-Time Portable Raspberry Pi-Based System for Sickle Cell Anemia Detection

**Saad Abdullah**<sup>1, 2</sup>, Abdelakram Hafid<sup>1</sup>, Annica Kristoffersson<sup>1</sup>, Muhammad Bilal Saeed<sup>3</sup>, Samreen Saad<sup>4</sup> <sup>1</sup> School of Innovation, Design and Engineering, Division of Medical and Health Engineering, Mälardalen University, Västerås, Sweden.

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### P39- A haptic-based assistive navigation system for individuals with profound visual impairment

### Ghazaleh Ghaffari<sup>1</sup>, Per Hallberg<sup>1</sup>, Amin Saremi<sup>1</sup>

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### P40- Screening of Tumor in an Anthropomorphic Breast Model

Laya Joseph<sup>1</sup>, Thiemo Voigt<sup>2</sup>, Mauricio Perez<sup>1</sup>, Robin Augustine<sup>1</sup>

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## P41 - Diagnostic - dielectric microwave sensors: Developing a body composition analyzer for applications in primary and secondary care

Mark Schneider<sup>1, 2</sup>, Mauricio Perez<sup>1, 2</sup>, Robin Augustine<sup>1, 2</sup>

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### P42 - Engineering of calcium phosphate nanoparticles for antimicrobial drug delivery

### Vasiliki Tsikourkitoudi<sup>1</sup>, Georgios Sotiriou<sup>1</sup>

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## P43 - Less microbubbles entered into the patients using the venous chamber Emboless® during haemodialysis

### Ulf Forsberg<sup>1</sup>, Bernd Stegmayr<sup>2</sup>, Per Jonsson<sup>1</sup>

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## P44 - Functional near-infrared spectroscopy, portable imagine techniques: new opportunities to evaluate cognitive processes during walking

### Saffran Möller<sup>1</sup>

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### P45 - Spatiotemporal PET reconstruction

Enza Cece<sup>1, 2</sup>, Pierre V. F. J. Meyrat<sup>1</sup>, Olivier Verdier<sup>3</sup>, Enza Torino<sup>2</sup>, Massimiliano Colarieti-Tosti<sup>3</sup>

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## P46- Assessment of Charge Exchange Mechanisms in Bioelectronic Materials during Direct Current Stimulation

Lukas Matter<sup>1, 2, 3, 4</sup>, Sebastian Shaner<sup>2, 3</sup>, Oliya Abdullaeva<sup>5</sup>, José Leal<sup>2, 3</sup>, Maria Asplund<sup>1, 2, 3, 4, 5</sup>

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- <sup>5</sup> Division of Nursing and Medical Technology, Luleå University of Technology, Luleå, Sweden.

## P47 - Design of Metamaterial Integrated Efficient Wireless Power Transfer System for Implantable Biomedical Sensors

### Tarakeswar Shaw<sup>1</sup>, Bappaditya Mandal<sup>1</sup>, Mauricio D. Perez<sup>1</sup>, Robin Augustine<sup>1</sup>

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### P48 - Microwave Diagnostics for Biomedical Applications

**Seyed Moein Pishnamaz<sup>1</sup>**, Elein Khaled<sup>1</sup>, Miriam von Westphalen<sup>1</sup>, Xuezhi Zeng<sup>1</sup>, Mikael Persson<sup>1</sup>, Andreas Fhager<sup>1</sup>

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### P49 - Millimeter-wave radar: the key sensor technology enabling healthcare at home Xuezhi Zeng<sup>1</sup>

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