POSTER WITH PITCH

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

***Bappaditya Mandal*[1]**, *Adarsh Singh*[2], *Debasis Mitra*[2], *Robin Augustine*[1]
[1] Microwaves in Medical Engineering Group, Electrical Engineering, Division of Solid-State Electronics, Uppsala University,
[2] Department of Electronics and Telecommunication Engineering, IIEST, Shibpur, India

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

***Francesco Di Feola*[1]**, *Susanna Jakobson Mo*[1], *Mikael Johansson*[1], *Paolo Soda*[1, 2]
[1] Department of Radiation Sciences, Umeå University, Sweden
[2] Research Unit of Computer Systems and Bioinformatics, Campus Bio-Medico University of Rome, Rome, Italy.

OP3 - Förstå Tal

***Birger Moell*[1]**, *Fredrik Sand Aronsson*[2], *Per Östberg*[2], *Jonas Beskow*[1]
[1] KTH, [2] KI

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

***Kaile Chen*[1, 2]**, *Farhad Abtahi*[1, 2, 3], *Hong Xu*[4], *Juan-Jesus Carrero*[5], *Carlos Fernandez-Llatas*[6], *Fernandez-Llatas Seoane*[1, 3, 7, 8]
[1] Department of Clinical Science, Intervention and Technology, Karolinska Institute, 17177 Stockholm, Sweden
[2] Division of Ergonomics, Department of Biomedical Engineering and Health System, Royal Institute of Technology, Stockholm, Sweden
[3] Department of Clinical Physiology, Karolinska University Hospital, 17176 Stockholm, Sweden
[4] Division of Clinical Geriatrics, Department of Neurobiology, Care Sciences and Society (NVS), Karolinska Institute, 17177 Stockholm, Sweden
[5] Department of Medical Epidemiology and Biostatistics, Karolinska Institute, 17177 Stock-holm, Sweden
[6] SABIEN, ITACA, Universitat Politécnica de Valencia, Valencia, Spain
[7] Department of Medical Technology, Karolinska University Hospital, 17176 Stockholm, Swe-den.
[8] Department of Textile Technology, University of Borås, 50190 Borås, Sweden

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

***David Unnersjö-Jess*[1, 2, 3, 4, 5]**, *Robin Ebbestad*[6], *Arash Fatehi*[2], *Bernhard Schermer*[2, 3], *Sigrid Lundberg*[7], *Hannes Olauson*[5], *Thomas Benzing*[2, 3], *Hans Blom*[1], *Katarzyna Bozek*[2], *Hjalmar Brismar*[1, 6]
[1] Department of Applied Physics, The Royal Institute of Technology, Stockholm, Sweden
[2] Center for Molecular Medicine Cologne (CMMC), University of Cologne, Faculty of Medicine and University Hospital Cologne, Cologne, Germany
[3] Department II of Internal Medicine and Center for Molecular Medicine Cologne (CMMC), University of Cologne, Faculty of Medicine and University Hospital Cologne, Cologne, Germany

[4] MedTechLabs, Karolinska University Hospital, Solna, Sweden
[5] Department of Clinical Sciences, Intervention and Technology (CLINTEC), Karolinska Institute, Stockholm, Sweden
[6] Department of Woman's and Children's Health, Karolinska Institutet, Solna, Sweden
[7] Division of Nephrology, Department of Clinical Sciences, Danderyd University Hospital, Karolinska Institutet, 18288 Stockholm, Sweden

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

Martina Jolic[1], Chiara Micheletti[1, 2], Peter Thomsen[1], Kathryn Grandfield[2, 3, 4], Furqan Shah[1], ***Anders Palmquist[1]***
[1] Department of Biomaterials, Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden
[2] Department of Materials Science and Engineering, McMaster University, Hamilton, ON, Canada
[3] School of Biomedical Engineering, McMaster University, Hamilton, ON, Canada
[4] Brockhouse Institute for Materials Research, McMaster University, Hamilton, ON, Canada

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

Sofia Johansson[1], *Mara Lucchetti[2], Gabriel Werr[2], Laurent Barbe[1], Paul Wilmes[2], Maria Tenje[1]*
[1] Dept. Materials Science and Engineering, Science for Life Laboratory, Uppsala University, Uppsala, Sweden
[2] Luxembourg Centre for Systems Biomedicine, Université du Luxembourg, Esch-sur-Alzette, Luxembourg

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

Oommen Varghese[1], *Shima Tavakoli[1], Hamidreza Mokhtari[1]*
[1] 1. Translational Chemical Biology Laboratory, Division of Macromolecular Chemistry, Department of Chemistry-Ångstrom Laboratory, Uppsala University, Uppsala SE75121, Sweden

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

Martina Jolic[1], *Omar Omar[1], Håkan Engqvist[2], Thomas Engstrand[3], Anders Palmquist[1], Furqan Shah[1], Peter Thomsen[1]*
[1] Department of Biomaterials, Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden
[2] Department of Engineering Sciences, Uppsala University, Sweden
[3] Department of Reconstructive Plastic Surgery, Karolinska University Hospital, Sweden

OP10 - Resorbable antibacterial wound dressing using Ag/SiO2 nanoparticles

Reshma Ramachandran[1], *Georgios Sotiriou[1]*
[1] Department of Microbiology, Tumor and Cell Biology, Karolinska Institutet, Stockholm, Sweden

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

Jinjian Lin[1], *Yanmiao Fan[1], Daniel J. Hutchinson[1], Michael Malkoch[1]*
[1] 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[1], *Nils Brynedal Ignell[2], Shaikh Faisal Zaman[2], Thomas Finocchiaro[2], Ina Laura Perkins[2], Seraina Anne Dual[1]*
[1] KTH Royal Institute of Technology, Stockholm, Sweden
[2] R&D, Scandinavian Real Heart AB, Västerås, Sweden

OP13 - Sampling through a transvascular working channel

Mikael Sandell*[1, 2, 3]*, *Arvin Chireh*[2]*, Argyris Spyrou*[1, 3]*, Stefan Jonsson*[1]*, Wouter van der Wijngaart*[1]*, Göran Stemme*[1]*, Niclas Roxhed*[1, 3]*, Staffan Holmin*[2]

[1] KTH Royal Institute of Technology

[2] Karolinska Institutet

[3] MedTechLabs

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

Martin Jacobsson*[1]*, *Max Bell*[2]*, Arman Valadkhani*[2]*, Thorir Sigmundsson*[2]

[1] KTH Royal Institute of Technology

[2] Karolinska University Hospital

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

Helena Grip*[1, 2]*, *Fredrik Öhberg*[1, 2]

[1] CIMT, Medicinsk teknik FoU, Region Västerbotten

[2] Strålningevetenskaper, Umeå universitet

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

Farhad Abtahi*[1]*, *Antonis Billis*[2]*, Fernando Seoane*[1, 3]*, Panos Papachristou*[4, 5]*, Panagiotis Bamidis*[2]

[1] Department of Clinical Science, Intervention and Technology, Karolinska Institutet, Stockholm, Sweden

[2] School of Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece

[3] Department of Clinical Physiology and the Department of Medical Technology Karolinska University Hospital Stockholm, Sweden

[4] Academic Primary Health Care Centre, Region Stockholm, Stockholm, Sweden

[5] 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*[1, 2]*, *Göran Mannberg*[1, 2]*, Tomas Bäcklund*[1, 2]*, Urban Edström*[1, 2]*, Olof Lindahl*[1, 2]

[1] MT-FoU, Norrlands universitetssjukhus, Umeå

[2] Radiation Sciences, Radiation Physics, Biomedical Engineering, Umeå University, Umeå

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

Mohammad Osaid*[1]*, *Kaiyang Zeng*[1]*, Wouter van der Wijngaart*[1]

[1] KTH Royal Institute of Technology

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

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

[1] Department of Clinical Neuroscience, Karolinska Institute, Stockholm, Sweden.

[2] Department of Radiology, Memorial Sloan Kettering Cancer Center, New York, USA.

[3] Department of Biosciences and Nutrition, Karolinska Institute, Stockholm, Sweden.

[4] Department of Immunology, Genetics and Pathology, Uppsala University, Uppsala, Sweden.

OP20 - Carotid ultrasound image denoising using low-to-high image quality domain adaptation

Mohd Usama*[1]*, *Arash Saboori*[1]*, Christer Grönlund*[1]

[1] Department of Radiation Sciences, Biomedical Engineering, Umeå University, Umea, Sweden

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

Mehdi Astaraki[1, 2, 3], *Chunliang Wang[1], Örjan Smedby[1], Iuliana Toma-Dasu[1]*
[1] KTH Royal Institute of Technology, Department of Biomedical Engineering and Health Systems, SE14157, Huddinge, Sweden
[2] Karolinska Institutet, Department of Oncology-Pathology, SE17176 Stockholm, Sweden
[3] 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[1], *András Gorzsás[2], Anders Bergh[3], Britt Andersson[4], Börje Ljungberg[5], Tomas Bäcklund[1], Urban Edström[1]*
[1] Radiation Sciences, Radiation Physics, Biomedical Engineering, Umeå University, Umeå
[2] Chemistry, Umeå University, Umeå
[3] Medical Bioscience, Pathology, Umeå University, Umeå
[4] Applied Physics and Electronics, Umeå University, Umeå
[5] Surgical and Perioperative Sciences, Urology and Andrology, Umeå University, Umeå

OP23 - Continuous monitoring of lung function for patients in intensive care using diode laser spectroscopy

Anna-Lena Sahlberg[1], *Emilie Krite Svanberg[2], Sara Bergsten[3], Katarina Svanberg[4], Sune Svanberg[1]*
[1] Department of Physics, Lund University, Lund, Sweden
[2] Department of Clinical Sciences, Anesthesiology and Intensive Care Medicine, Skåne University Hospital, Lund University, Lund, Sweden
[3] Neola Medical AB
[4] Department of Clinical Sciences, Oncology and Pathology, Skåne University Hospital, Lund University, Lund, Sweden

OP24 - 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[1], *Bappaditya Mandal[1], Mauricio David Perez[1], Fredrik Huss[2], Robin Augustine[1]*
[1] Microwaves in Medical Engineering Group, Division of Solid State Electronics, Department of Electrical Engineering, Uppsala University, Box 65, SE-751 03 Uppsala, Sweden.
[2] Department of Surgical Sciences, Plastic Surgery, Uppsala University, 751 05, Uppsala, Sweden

OP25 - Intrabody Communication Through Fat Tissue for Brain-Machine Interface Applications

Johan Engstrand[1], *Pramod Rangaiah[1], Ted Johansson[1], Mauricio D. Perez[1], Robin Augustine[1]*
[1] Department of Electrical Engineering, Division of Solid-State Electronics, Uppsala University

OP26 - microneedle-based wearable platforms toward minimally invasive glycine/lactate monitoring

Qianyu Wang[1]
[1] Department of Chemistry, School of Engineering Sciences in Chemistry, Biotechnology and Health, KTH Royal Institute of Technology, Teknikringen 30, SE-100 44 Stockholm, Sweden

OP27 - Microwave-Based Planar Methods for Non-Invasive Intracranial Pressure Monitoring: Review and Directions

Mauricio Perez[1], Danilo *Brizi[2], Agostino Monorchio[2], Ander Lewén[3], Robin Augustine[1]*
[1] Microwaves in Medical Engineering, Solid-State Electronics, Department of Engineering Sciences, Uppsala University, Sweden
[2] Department of Information Engineering, Pisa University, Italy.
[3] Neurosurgery, Department of Medical Sciences, Uppsala University, Sweden

OP28 - Mikrovågsbaserad diagnostik av bristning i hamstringsmuskeln orsakad av idrott

Laura Guerrero Orozco[1], Andreas *Fhager[1]*
[1] Chalmers university of technology

OP29 - Mikrovågsbaserat system för detektion av trauma i skalle, bröst och buk

August Ekman[1], Mikael *Persson[1], Andreas Phager[1]*
[1] Chalmers Tekniska Högskola

OP30 - Next generation MEMS-based metal oxide gas sensors on a thin silicon layer of SOI substrate enabling exhaled breath analysis

Hithesh K Gatty[1]
[1] GattyInstruments AB, Green Innovation park, Ulls väg 29c, 75651 Uppsala

OP31 - Standalone microwave device to screen for poor muscle quality

Viktor Mattsson[1], *Bappaditya Mandal[1], Mauricio D. Perez[1], Robin Augustine[1]*
[1] Division of Solid State Electronics, Department of Electrical Engineering, Uppsala University

OP32 - Fat-intrabody Communication Empowering Wearable Devices: The H2020 SINTEC Milestone

Mauricio Perez[1], *Laya Joseph[1], Pramod Rangaiah[1], Bappaditya Mandal[1], Robin Augustine[1]*
[1] Microwaves in Medical Engineering, Solid-State Electronics, Department of Engineering Sciences, Uppsala University, Sweden

POSTERS

P1 - Application of information mining technologies to the study of chronic diseases: A systematic review

Kaile Chen [1, 2], *Farhad Abtahi* [1, 2, 3], *Juan-Jesus Carrero* [4], *Carlos Fernandez-Llatas* [5], *Fernando Seoane* [1, 3, 6, 7]

[1] Department of Clinical Science, Intervention and Technology, Karolinska Institute, 17177 Stockholm, Sweden

[2] Department of Biomedical Engineering and Health System, Division of Ergonomics, Royal Institute of Technology, Stockholm, Sweden

[3] Department of Clinical Physiology, Karolinska University Hospital, 17176 Stockholm, Sweden

[4] Department of Medical Epidemiology and Biostatistics, Karolinska Institute, 17177 Stockholm, Sweden

[5] SABIEN, ITACA, Universidad Politécnica de Valencia, Valencia, Spain

[6] Department of Medical Technology, Karolinska University Hospital, 17176 Stockholm, Sweden

[7] Department of Textile Technology, University of Borås, 50190 Borås, Sweden

P2 - Classification of Brain Tumour Tissue in Histopathology Images Using Deep Learning

Christoforos Spyretos [1, 2], *Iulian Emil Tampu* [1, 3], *Anders Eklund* [1, 3, 2], *Neda Haj-Hosseini* [1, 3]

[1] Department of Biomedical Engineering, Linköping University, Sweden

[2] Division of Statistics & Machine Learning, Department of Computer and Information Science, Linköping University, Sweden

[3] Center for Medical Image Science and Visualization, Linköping University, Sweden

P3 - Machine Learning Algorithm to Assess Muscle from Microwave Sensor Data

Viktor Mattsson [1], *Bappaditya Mandal* [1], *Mauricio D. Perez* [1], *Robin Augustine* [1]

[1] Division of Solid State Electronics, Department of Electrical Engineering, Uppsala University

P4 - Antimicrobial activity of flame-made Ag/SiO2 nanoparticles

Maria Samara [1], *Vasiliki Tsikourkitoudi* [1], *George A. Sotiriou* [1]

[1] Department of Microbiology, Tumor and Cell Biology, Karolinska Institutet

P5 - Highly biocompatible Mg-Ca alloy with enhanced bioactivity towards bone regeneration

Niccoló De Berardinis [1], *Andrea Rich* [2], *Cecilia Persson* [1], *Jörg Löffler* [2], *Gry Hulsart Billström* [1, 3]

[1] Uppsala University, Department of Materials Science and Engineering, Biomedical Engineering

[2] ETH Zurich, Department of Materials, Laboratory of Metal Physics and Technology

[3] Uppsala University, Department of Medical Cell Biology

P6 - Edu-Mphy: A Low-Cost Multi-Physiological Recording System for Education and Research in Healthcare and Engineering

Abdelakram HAFID [1], *Saad abdullah* [1], *Annica kristoffersson* [1]

[1] Mälardalen University, Sweden

P7 - Real-Time Portable Raspberry Pi-Based System for Sickle Cell Anemia Detection

Saad Abdullah [1, 2], *Abdelakram Hafid* [1], *Annica Kristoffersson* [1], *Muhammad Bilal Saeed* [3], *Samreen Saad* [4]

[1] School of Innovation, Design and Engineering, Division of Medical and Health Engineering, Mälardalen University, Västerås, Sweden.

[2] Department of Biomedical Engineering, Riphah International University, Lahore, Pakistan

[3] Biomedical Engineering Department, NED University of Engineering and Technology, Karachi, Pakistan.

[4] Department of Biochemistry, Karachi University, Karachi, Pakistan

P9 - Screening of Tumor in an Anthropomorphic Breast Model

Laya Joseph [1], *Thiemo Voigt* [2], *Mauricio Perez* [1], *Robin Augustine* [1]

[1] Microwaves in Medical Engineering Group, Solid State Electronics Division, Department of Electrical Engineering, Uppsala University

[2] Networked Embedded Systems Division, Department of Electrical Engineering, Uppsala University

P10 - Diagnostic - dielectric microwave sensors: Developing a body composition analyzer for applications in primary and secondary care

Mark Schneider*[1, 2]*, *Mauricio Perez*[1, 2]*, Robin Augustine*[1, 2]
[1] Ångström Laboratory, Microwaves in Medical Engineering Group, Solid State Electronics, Department of Electrical Engineering, Uppsala University, Uppsala, Sweden
[2] Probingon AB, Uppsala, Sweden

P11 - Engineering of calcium phosphate nanoparticles for antimicrobial drug delivery

Vasiliki Tsikourkitoudi*[1]*, *Georgios Sotiriou*[1]
[1] Department of Microbiology, Tumor and Cell Biology, Karolinska Institutet

P12 - Less microbubbles entered into the patients using the venous chamber Emboless® during haemodialysis

Ulf Forsberg[1]*, Bernd Stegmayr*[2]*,* ***Per Jonsson*[1]**
[1] Institutionen för folkhälsa och klinisk medicin, (1) Umeå (2) Skellefteå, Umeå Universitet
[2] Institutionen för folkhälsa och klinisk medicin, Umeå Universitet

P13 - Functional near-infrared spectroscopy, portable imagine techniques: new opportunities to evaluate cognitive processes during walking

***Saffran Möller*[1]**
[1] Department of Rehabilitation, School of Health and Welfare, Jönköping University

P14 - Spatiotemporal PET reconstruction

Enza Cece*[1, 2]*, *Pierre V. F. J. Meyrat*[1]*, Olivier Verdier*[3]*, Enza Torino*[2]*, Massimiliano Colarieti-Tosti*[3]
[1] Division of Biomedical Imaging, KTH, Stockholm, Sweden
[2] Dept of Chemical Engineering, Materials and Production, Naples, Italy
[3] Dept of Computing, Mathematics, and Physic, HVL, Bergen, Norway

P15 - Assessment of Charge Exchange Mechanisms in Bioelectronic Materials during Direct Current Stimulation

Lukas Matter*[1, 2, 3, 4]*, *Sebastian Shaner*[2, 3]*, Oliya Abdullaeva*[5]*, José Leal*[2, 3]*, Maria Asplund*[1, 2, 3, 4, 5]
[1] Department Microtechnology and Nanoscience (MC2), Chalmers University of Technology, Sweden.
[2] Department of Microsystems Engineering (IMTEK), University of Freiburg, Germany.
[3] Center BrainLinks-BrainTools, University of Freiburg, Freiburg, Germany.
[4] Freiburg Institute for Advanced Studies (FRIAS), University of Freiburg, Freiburg, Germany.
[5] Division of Nursing and Medical Technology, Luleå University of Technology, Luleå, Sweden.

P16 - Design of Metamaterial Integrated Efficient Wireless Power Transfer System for Implantable Biomedical Sensors

Tarakeswar Shaw*[1]*, *Bappaditya Mandal*[1]*, Mauricio D. Perez*[1]*, Robin Augustine*[1]
[1] Microwaves in Medical Engineering Group, Electrical Engineering, Division of Solid-State Electronics, Uppsala University, 75121 Uppsala, Sweden.

P17 - Microwave Diagnostics for Biomedical Applications

Seyed Moein Pishnamaz*[1]*, *Elein Khaled*[1]*, Miriam von Westphalen*[1]*, Xuezhi Zeng*[1]*, Mikael Persson*[1]*, Andreas Fhager*[1]
[1] Chalmers University of Technology

P18 - Millimeter-wave radar: the key sensor technology enabling healthcare at home

***Xuezhi Zeng*[1]**
[1] Department of Electrical Engineering, Chalmers University of Technology, 412 58 Göteborg, Sweden