

MEDTECH LINKS

Innovations in Medical Diagnostic Technologies

MEDTECH LINKS

Event Details

Thursday 18th April 2024

13:00 - 18:30

RSM 2.28 // RSM 3.01 (C, D, E)

Royal School of Mines

Imperial College London

South Kensington

Overview

You are warmly welcomed to attend the latest event in the Imperial MedTech Links series exploring Imperial College innovations in Medical Diagnostics Technologies. Molecular, sequencing, AI and data analytics tools are rapidly changing the world of diagnostics in all disease areas. Hear from Imperial College researchers and clinicians about their work and learn about how we are translating research into products which can be used by clinicians and their patients. We will also let you know about our capabilities and how you might access our laboratories.





PROGRAMME

Registration, Lunch and Exhibition

13:00 - 14:00

RSM 3.01 (C, D, E)

Welcome & Introduction

Professor George Hanna

14:00 - 14:10

RSM 2.28

Session 1: Molecular Diagnostics

14:15 - 15:15

RSM 2.28

Dr Sylvain Ladame “Engineering novel screening tools for improving patient stratification in primary care.”

14:15 - 14:30

Dr Leah Frenette “Nanozymes for ultrasensitive detection at the point of care.”

14:30 - 14:45

Professor Pantelis Georgiou (ProtonDX) “Transforming point-of-care testing with rapid, affordable, multi-pathogen diagnostics.”

14:45 - 15:00

Professor George Hanna “Breath tests to detect gastrointestinal cancers.”

15:00 - 15:15



PROGRAMME

Break and Exhibition

15:15 - 15:45

RSM 3.01 (C, D, E)

Session 2 : Genomics, Sequencing and Diagnostics

15:45 - 16:30

RSM 2.28

Dr David Antcliffe “Diagnostics to monitor the host’s response to sepsis.”

15:45 - 16:00

Dr Ren Ren “Single molecule screening and diagnostics.”

16:00 - 16:15

Regius Professor Chris Toumazou (DnaNudge) “Talk title TBC”

16:15 - 16:30

Session 3 - Part 1: Artificial Intelligence

16:30 - 17:15

RSM 2.28

Dr Matthieu Komorowski “Reinforcement learning decision to support the Intensive Care Unit.”

16:30 - 16:45

PROGRAMME

Dr Anand Shah “Opportunities and challenges facing AI in chronic lung disease.”

16:45 - 17:00

Dr Massimo Micocci “Human Factors studies to support the development of an AI-based technology for skin cancer diagnosis.”

17:00 - 17:15

Session 3 - Part 2: Imperial Capabilities

17:15 - 17:30

RSM 2.28

Dr Florent Seichepine “Laboratory Hire.”

Dr Peter Buckle “Helping you with Regulatory Approval.”

Dr James Choi “MEng Sponsored Projects.”

17:15 - 17:30

Reception and Exhibition

17:30 - 18:30

RSM 3.01 (C, D, E)

SPEAKERS



Professor George Hanna

Head of the Department of Surgery and Cancer

Professor Hanna's current work revolves around volatile organic compounds analysis for biomarker discovery and understanding the molecular drivers of volatile biomarkers. This programme aims to develop and validate a non-invasive breath test as a platform diagnostic technology to detect gastrointestinal (oesophageal, gastric, colorectal, pancreatic and liver) cancers.



Dr Sylvain Ladame

Reader in Biosensor Development

Dr Ladame's current interests deal with the engineering of small molecules and proteins for sensing and targeting nucleic acid structures in vivo. Dr Ladame's group aims to develop original chemical and biochemical tools to explore key biological processes (e.g. DNA transcription, DNA damage repair mechanisms), focusing on the identification of new therapeutic targets and of disease-related biomarkers.



Dr Leah Frenette

Research Associate

Dr Frenette's research interests include Nanomaterials (Synthesis and characterisation), Photocatalysis, Biosensing, Point-of-Care Diagnostics



Professor Pantelis Georgiou

Professor of Biomedical Electronics

Professor Georgiou's research includes ultra-low power micro-electronics, bio-inspired circuits and systems, lab-on-chip technology and application of micro-electronic technology to create novel medical devices. Application areas of his research include new technologies for treatment of diabetes such as the artificial pancreas, novel Lab-on-Chip technology for genomics and diagnostics targeted towards infectious disease and antimicrobial resistance (AMR), and wearable technologies for rehabilitation of chronic conditions.

SPEAKERS



Dr David Antcliffe

Clinical Senior Lecturer in Critical Medicine

Dr Antcliffe's current research interests involve using a range of profiling techniques, including metabonomic, transcriptomic and inflammatory profiling, to identify sub-phenotypes in sepsis that could predict a patient's responsiveness to specific therapeutic strategies and lead to a personalised approach to sepsis care.



Dr Ren Ren

Research Associate

Dr Ren's research focuses on addressing the limitations of the diagnostic capabilities of nanopores, in relation to the detection of DNA, RNA, and proteins. The detection of these biomolecules is often limited by the low concentration in biological samples, fast translocation time of the analytes, poor analyte selectivity and low signal-to-noise ratio, and these challenges are being addressed by designing new classes of nanoscale sensors.



Regius Professor Chris Toumazou

Winston Wong Chair, Biomedical Circuits

Professor Toumazou's career is distinguished for his ground-breaking research in bringing silicon technology to the field of medical devices for early detection, diagnosis and therapy. His earlier research includes cochlear implants for born-deaf children, an artificial pancreas for Type 1 diabetics, wireless heart monitors for personalised ambulatory health monitoring, and inventing an intelligent neural stimulator as a drug alternative for obesity, and his co-invention of semiconductor DNA sequencing revolutionised genetic testing.



Dr Matthieu Komorowski

Clinical Senior Lecturer

Dr Komorowski's research applies machine learning techniques to build the next generation of decision support systems for critical care with a specific focus on sepsis.

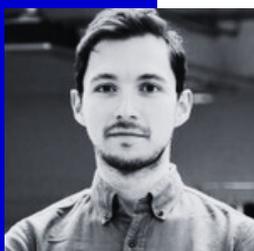
SPEAKERS



Dr Anand Shah

Honorary Clinical Senior Lecturer

Professor Shah's current research projects include studies investigating whole genome sequencing to understand fungal resistance evolution and acquisition in chronic lung disease and validating a novel point-of-care loop-mediated isothermal amplification (LAMP)-based detection assay, the immunophenotyping of fungal infections in cystic fibrosis and targeted immunotherapies for CF fungal disease, the development of iPSC-derived macrophage models of pulmonary fungal infections, assessing the use of minimally supervised machine learning analysis of CT imaging of chronic pulmonary disease, and validating tablet and web-based audiometry as screening tools to identify hearing loss in cystic fibrosis.



Dr Massimo Micocci

Honorary Research Associate

Dr Micocci has worked on the European Project Light.Touch.Matters. contributing to the application of Human-Centred Design and qualitative research principles to investigate opportunities in the integration of Smart Materials into smart product interfaces so as to design intuitive and immediate interactions for health and wellbeing products.

His other areas of interest and contribution include Inclusive Design and human-driven technology development.



Dr Florent Seichepine

Engineering Core Facilities Manager

Dr Seichepine joined the Department of Bioengineering as facility manager of the Bionanofabrication clean room in 2021. This new laboratory has the ambition to bring Atomic Layer Deposition capabilities for bio-material to the researcher of the department and beyond.

He also oversees the coordination between the microfabrication capabilities across the college platform for the department of Bioengineering.

His technical expertise ranged from microfabrication technology development, microfluidics, micro/nano robotics, packaging of CMOS and microsensors and the use of nanomaterials for electronics and sensing in biological environments.

SPEAKERS



Dr Peter Buckle

Principal Research Fellow in Human Factors

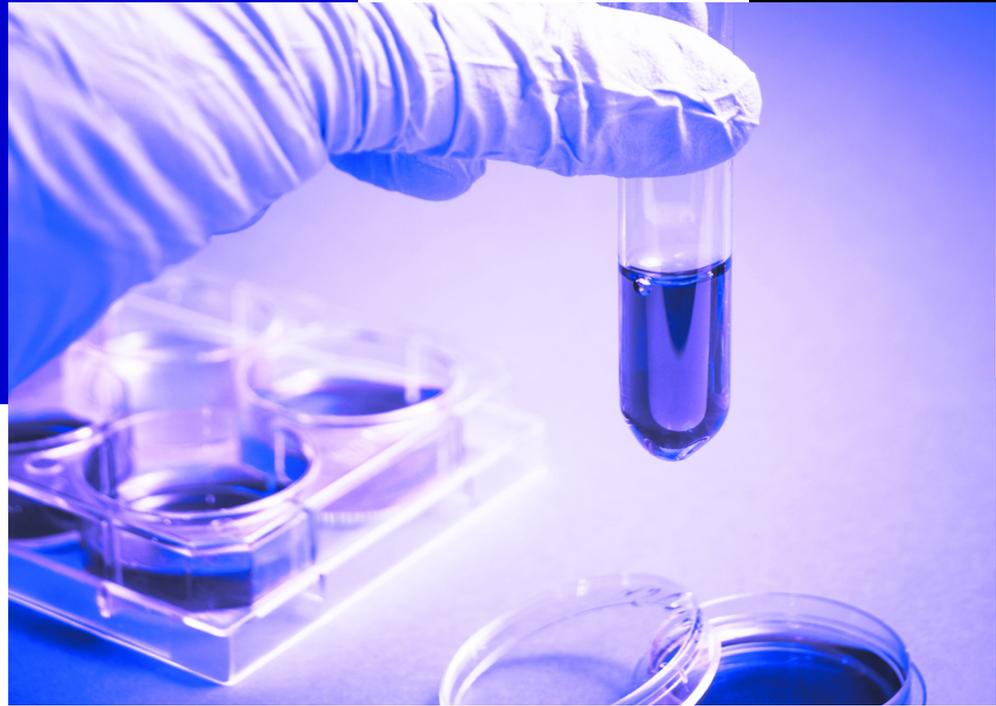
Dr Buckle is an expert in human factors and design safety. His work is primarily within the NIHR funded In-vitro diagnostic co-operative based within the Department of Surgery and Cancer.



Dr James Choi

Senior Lecturer

Dr Choi leads the Non-invasive Surgery and Biopsy Laboratory and is a senior lecturer in the Department of Bioengineering. The purpose of the Noninvasive Surgery & Biopsy Laboratory is to build incision-less microsurgical devices and methods and works on five different disciplines: Hardware - Microsurgical devices and electronics, Algorithms - Beamforming and signal/image processing, Physics - Non-invasive energies and their interactions with tissue, Biology - The biological response to the non-invasive energies, Translation - Translating our inventions in mice and human patients.



CONTACT INFO



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