EMERGING SENSING TECHNOLOGIES SUMMIT

Hosted by the International Innovative Research Network

SUMMIT PROGRAM BOOK

SUMMIT CHAIR

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SUMMIT INFORMATION

● Registration desk

The registration desk will be open in the foyer at level 4 of Rydges on Swanston hotel at the following times:

Wednesday 7 December
8:00am to 6.30:pm

Thursday 8 December
8:30am to 6:30pm

Friday 9 December
8:30am to 5:30pm

● Name badges and dinner tickets

All delegates are required to wear name badges throughout the summit. Name badges are your ticket of admittance to all summit sessions. Dinner tickets are located behind your name card in your name badge. Please remember to bring your ticket with you to the function. If you believe you have booked for the dinner and do not have a ticket, please see the team at the Registration Desk.

● Where do I get help?

Please contact the team at the Registration Desk or any of the ESTS'16 committee members. If you need urgent medical assistance, the hotel staff can also assist.

● Abstracts

Abstracts can be downloaded from the summit website (www.ests16.org).

● Instructions for presenters

Oral presentations

There are three types of oral presentation. It is important to remember that the times listed below are the **total** times for presentations. Speakers should aim to talk for several minutes less than these times, to allow for questions and changeover. Suggested times are included below. The session chairs will follow the schedule rigorously.

Plenary lectures:
40 minutes (e.g. 35 + 5 mins)

Invited lectures:
25 minutes (e.g. 20 + 5 mins)

Oral communications:
15 minutes (e.g. 13 + 2 mins) Speakers are strongly encouraged to bring their talks to the summit on USB drivers. They should load them onto the computer before their session and allow time for checking. Technical staff will be available to assist if needed. If you are planning to use your laptop, please check the connect between your laptop and the projector prior to your session.

Poster presentations

Poster boards will be located in the foyer and on the deck around the swimming pool if the weather permits. When placing your poster on the appropriately-numbered poster board, please ensure that it is presented in a portrait (vertical) format. The size of the poster must not exceed 950mm in width by 1200mm in height. Please use Velcro to fix your portrait (vertical) poster to the allocated poster board in the morning of your presentation day. Please do not move the poster board numbers. Clearly labelled poster tubes can be stored behind the Registration Desk.

Expert Panellists

Each panellists is expected to speak for about 2-5 minutes about his/her personal view on the needs, gaps and future direction pertaining to the topic of the panel. The moderator will then ask questions and the panellists will address them. During the last 20 minutes of the panel discussion, the panellists will receive and answer to questions from the audience.

SUMMIT INFORMATION

● Catering
The following catering is included in the summit registration: all morning teas, lunches, afternoon teas and cocktail during the poster session.

The summit dinner is NOT included in the registration fee. If you have not booked and would like to attend the dinner function, please purchase the ticket online or contact the team at the Registration Desk before 8 December 2016.

● Internet Access
Free wireless internet access is available throughout the venue during the summit.

● Dress code
We recommend that delegates dress in smart casual attire for the summit and business attire/lounge suits for the dinner function.

● Luggage storage
For delegates departing directly to the airport, limited luggage storage is available daily at the Registration Desk.

● Transport
Taxi can be arranged by the hotel reception on the ground level of the hotel. A tram stop is located right outside of the hotel, on Swanston street.

● Talks, posters & functions rooms
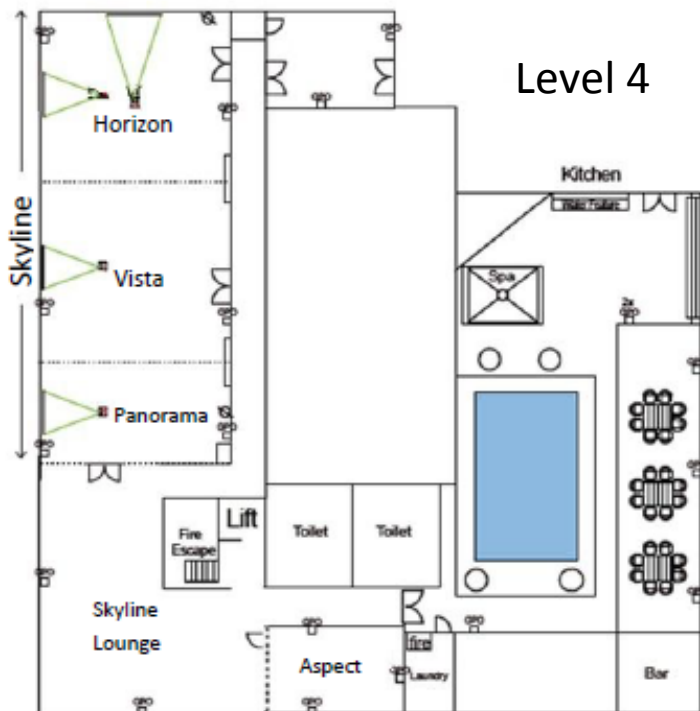Plenary sessions will be held at the Skyline room (Horizon + Vista + Panorama).

Concurrent session will be held in Vista, Panorama and Horizon rooms.

Catering will be served at the Skyline lounge during breaks (morning teas, lunches and afternoon teas)

Poster session will be held at the Skyline lounge.

The Dinner function will be held at the ground floor of Rydges on Swanston hotel.

VENUE FLOOR PLAN

Level 4

SUMMIT PROGRAM - 7 December			
8:00-8:45	Registration		
8:45-9:00	Opening ceremony		
9:00-10:20	**Plenary session 1** **Chair:** Prof. Derek Abbott, Adelaide University, (Australia)		
9:00-9:40	Prof. Andrew Cleland, *University of Chicago (USA)* Sensing Quantum Entanglement		
9:40-10:20	Prof. Alex Zelinsky, *Chief Defence Scientist, Defence Science Technology Group (Australia)* Disruptive Sensing Capabilities for Defence		
10:20-10:50	Morning tea		
10:50-11:30	**Plenary session 2** **Chair:** Prof. Lorenzo Faraone, *University of Western Australia (Australia)*		
10:50-11:30	Prof. Paul Burn, *The University of Queensland (Australia)* Arbsense – a selective sensor for nitro-containing explosives and taggants		
11:30-12:30	**Expert panel discussion: Sensing for Defence and Security** Prof. Andrew Cleland, Prof. Lidia Morawska, Prof. Alex Zelinsky, Prof. Carole Jackson, Prof. Paul Burn, A/Prof. Alan Wong **Moderator:** Prof. Lorenzo Faraone, *University of Western Australia (Australia)*		
12:30-1:30	Lunch		
1:30-3:35	**Concurrent session 1: Biosensing** **Chair:** Prof. Damien Arrigan, *Curtin University (Australia)*	**1:30-3:35**	**Concurrent session 1: RADAR sensing** **Chair:** Prof. Stuart Bradley, University of Auckland (New Zealand)
1:30-1:55	Prof. Jadranka Travas-Sejdic, *University of Auckland (New Zealand)* Ultra-sensitive, Label-free Gene Detection with Novel Conjugated Polymers	1:30-1:55	Laureate Prof. Robin Evans, *University of Melbourne (Australia)* The future of nano-radar sensor
1:55:2:20	Prof. Samuel Adeloju, *Monash University (Australia)* Biosensing with Highly Ordered Gold Nanowires Array	1:55:2:20	Dr. Joe Fabrizio, *Defence Science and Technology Group (Australia)* Robust Radar Processing for Sensitivity and Resolution Enhancement
2:20:2:45	Dr. Stefan Harrer *IBM Research (Australia)* Wearables to Thinkables: Decoding Brain States using Deep Learning and IBM's Brain-Inspired TrueNorth Chip	2:20:2:45	Dr. Ting Yuan *Mercedes-Benz Research & Development North America (USA)* Multi-sensor Association/Fusion in Linear and Nonlinear Systems
2:45:3:10	Dr. Behzad Bozorgtabar *IBM Research (Australia)* Vision-based Tracking for Sports Performance Analysis	2:45:3:10	Dr. Lam Bui, *Central Queensland University (Australia)* Photonics assisted arbitrary waveform generations

SUMMIT PROGRAM - 7 December					
3:10-3:40	**Afternoon tea** & **Poster session**				
3:40-5:20	**Concurrent session 3: Imaging** **Chair:** Dr. Ting Yuan, *Mercedes-Benz Research & Development North America (USA)*	**3:40-5:00**	**Concurrent session 4: Chemical Sensing** **Chair:** Prof. Jadranka Travas-Sejdic, *University of Auckland (New Zealand)*	**4:05-5:20**	**Concurrent session 5: RF and THz sensing** **Chair:** Dr. Yuvaraja Visagathilagar, RMIT University (Australia)
3:40-4:05	Prof. Stuart Bradley, *University of Auckland (New Zealand)* Very High Resolution Acoustic Remote Sensing	3:40-4:05	Prof. Damien Arrigan, *Curtin University (Australia)* Ion-transfer across soft interfaces as a chemical sensing mechanism	3:40-4:05	Prof. Derek Abbott Adelaide University, (Australia) Sensing in the terahertz regime
4:05-4:30	Prof. Michael Withford Macquarie University, (Australia) Shrinking the Telescope: replacing bulk optics with 3D integrated photonics	4:05-4:30	Dr. Matthew Myers *CSIRO (Australia)* AlGaN/GaN transistor sensors: an on-chip reference electrode free approach to ion detection	4:05-4:30	Dr. Emran Md Amin, *RFS (Australia)* Printable Chipless RFID Sensors for future Track and Trace Solution
4:30-4:55	A/Prof. Xiaoke Yi, *University of Sydney (Australia)* Microwave photonics for high performance sensing	4:30-4:45	Dr. Mahnaz Shafiei, *Queensland University of Technology (Australia)* Nanostructure Based Gas Sensors Operating at Room Temperature	4:30-4:55	Sahan Fernando *QinetiQ, Australia* Partial discharge in High Voltage Systems and Early Detection using RF sensors.
4:55-5:20	Dr. Eike Zeller, *IR Sensors (Australia)* Low-cost mosaic pixel infrared sensor arrays	4:45-5:00	Dr. Bobby Pejcic, *CSIRO (Australia)* Modifying and Optimising Polymer Films for Molecular Sensing of Hydrocarbons in Aquatic Environments	4:55-5:20	Amir Ebrahimi RMIT University, (Australia) Metamaterial-inspired Microwave Microfluidic Sensors

SUMMIT PROGRAM – 8 December			
9:00-10:30	**Plenary session 3** **Chair:** Prof. Andrew Cleland, *University of Chicago (USA)*		
9:00-9:40	Dist. Research Prof. Shizuo Tokito, *Yamagata University (Japan)* Biosensor Platform Based on Organic Field-Effect Transistors		
9:40-10:20	Prof. David V. Thiel, Griffith University (Australia) Wireless Sensing of Human Activity – A New Frontier in Sport and Health		
10:20-10:50	Morning tea		
10:50-12:30	**Plenary session 4** **Chair:** Prof. John Canning, *University of Sydney (Australia)*		
10:50-11:30	Prof. Roberto Sabatini, *RMIT University (Australia)* Multisensor Systems and Data Fusion for Unmanned Aircraft Systems		
11:30-12:30	**Expert panel discussion: Sensing for Health and Human-Machine Teaming** Dist. Research Prof. Shizuo Tokito, Prof. Miklos Gratzl, Prof. David V. Thiel, Prof. Jadranka Travas-Sejdic, Prof. Olga Troynikov, Dr. Steven Spencer **Moderator:** Prof. John Canning *University of Sydney (Australia)*		
12:30-1:30	Lunch		
1:30-3:30	**Concurrent session 6: Biomedical sensing** **Chair:** A/Prof. Conor F. Hogan, *La Trobe University (Australia)*	**1:30-3:30**	**Concurrent session 7: Optical Sensing** **Chair:** Prof. David Lancaster, University of South Australia (Australia)
1:30-1:55	Prof. Miklos Gratzl, *Case Western Reserve University (USA)* Electrochemical and Optical Micro-Sensing at *in vitro* Tumor Cell Constructs	1:30-1:55	Prof. John Canning *University of Sydney (Australia)* Smart devices and photonics for sensing and diagnostics
1:55-2:20	Dr. Steven Spencer, *CSIRO (Australia)* Microbubble Acoustic Resonance Interference Spectroscopy	1:55-2:20	Prof. Heike Ebendorff-Heidepriem, *University of Adelaide (Australia)* Taming the light in optical fibres for sensing
2:20-2:45	Dr. Martin Sweetman, *University of South Australia (Australia)* (Bio)Sensing platforms for monitoring personal and environmental factors	2:20-2:45	Dr. Carlo Bradac, *Macquarie University (Australia)* Cooperatively-Enhanced (Superradiance) Atomic Dipole Forces in Optically Trapped Nanodiamonds Containing NV Centres, in Liquid
2:45-3:00	Prof. Boon Giin Lee, *Keimyung University (South Korea)* Wearable Glove Type Driver Stress Monitoring with Steering Wheel Control Behavior and GSR	2:45-3:00	Dr. Abdul Shakoor, *University of Glasgow (Scotland)* CMOS integrated nanophotonic sensor
3:00-3:15	Prof. Mohd Noor Ahmad, *University of Malaysia (Malaysia)* Microwave Nanoantenna-Nanobiosensors for Asymtomatic Cancer Detection	3:00-3:15	Mr. Dominic Sims, *University of Nottingham (United Kingdom)* UK Quantum Technology Hub for Sensors and Metrology
3:15-3:45	Afternoon tea		

SUMMIT PROGRAM – 8 December					
3:45-5:45	**Concurrent session 8: Optical sensing** Chair: Prof. Heike Ebendorff-Heidepriem, *University of Adelaide (Australia)*	**3:45-5:45**	**Concurrent session 9: Imaging** Chair: Prof. Carole Jackson, *Curtin University (Australia)*	**3:45-5:45**	**Concurrent session 10: Biochemical sensing** Chair: Dr. Steven Spencer, *CSIRO (Australia)*
3:45-4:10	Prof. David Lancaster University of South Australia (Australia) Photonic manufacturing of advanced chip lasers and their potential applications	3:45-4:10	Prof. Lorenzo Faraone, *University of Western Australia (Australia)* Optical MEMS Technologies for Infrared Spectroscopy, Sensing, and Imaging	3:45-4:10	Prof. Yves De Deene, *Macquarie University (Australia)* Safeguarding radiotherapy and biosensing with quantitative magnetic resonance imaging
4:10-4:35	Dr. David A. Simpson, *University of Melbourne (Australia)* Quantum sensing and imaging of magnetic fields using spins in diamond	4:10-4:35	A/Prof. Wataru Takeuchi *University of Tokyo (Japan)* Application of Himawari-8 for wild fire monitoring in Asia Pacific region	4:10-4:35	A/Prof. Conor F. Hogan, *La Trobe University (Australia)* Android Voltammetry: Use of a mobile device as an instrument for voltammetric analysis
4:35-5:00	Dr. Yuvaraja Visagathilagar, *RMIT University (Australia)* Optical Sensing: Current Trends to Future Applications	4:35-5:00	Dr. Luke Rosenberg, *DST Group (Australia)* The NRL multi-aperture SAR: system description and results	4:35-5:00	Dr. Ylias M Sabri, RMIT University (Australia) Mercury detection in real industrial flue gas using nanostructured microsensors
5:00-5:15	Dr. Denitza Denkova, *KU Leuven (Belgium)* Sensing the magnetic near-field of light with an aperture probe	5:00-5:15	Dr. Martin Ploschner, *Dundee University (United Kingdom)* Multimode fibre based imaging and sensing	5:00-5:25	Manpreet Singh , ARRIS Group, Inc. (Australia) Feature Extraction of ECG Signal and Information Transfer
5:15-5:30	Dr. George Chen, University of South Australia (Australia) Ultra-fast and ultra-sensitive colorimetric humidity sensors	5:15-5:30	Rohan Kapoor RMIT University (Australia) Bio-inspired Navigation Sensing Using Acoustic Waves: A Review	5:25-5:40	Jian-Gong Ma *Nankai University , (China)* Metal-Organic Frameworks as Electrochemical Biosensor towards *L*-tyrosine Acid
5:30-5:45	Dr. Ehsan Eftekhari, *Griffith University, (Australia)* Picomolar Reversible Hg(II) Solid-State Sensor Based on Carbon Dots in Double Heterostructure Colloidal Photonic Crystals	5:30-5:45	Roxanne Marie S. Albon, *University of the Philippines Cebu (Philippines)* Inland Wetland Characterization Using LiDAR Data In Ilog, Negros Occidental	5:40-5:55	Dr. Stephen Warren-Smith *University of Adelaide, (Australia)* Single-material optical fiber high temperature sensors
5:45-6:00	Dr. Ehsan Eftekhari, *Griffith University, (Australia)* Picomolar Reversible Hg(II) Solid-State Sensor Based on Carbon Dots in Double Heterostructure Colloidal Photonic Crystals				
6:00-7:00	Pre-dinner cocktail				
7:00-9:30	Dinner				

SUMMIT PROGRAM – 9 December			
9:00-11:00	**Plenary session 5** **Chair:** Dist. Research Prof. Shizuo Tokito, *Yamagata University (Japan)*		
9:00-9:40	Prof. Hwa-yaw Tam, *The Hong Kong Polytechnic University (China)* Novel Polymer Optical Fiber Bragg Grating Sensing System		
9:40-10:20	Prof. Benjamin J. Eggleton, *University of Sydney (Australia)* Integrated photonic smart sensors for air-quality sensing and bio-medical applications		
10:20-11:00	Prof. Jugdutt Singh, *Swinburne University of Technology (Australia)* Sensor Network and Pathways to Market		
11:00-11:30	Morning tea		
11:30-1:10	**Plenary session 6** **Chair:** Prof. Jugdutt Singh, *Swinburne University of Technology (Australia)*		
11:30-12:10	Prof. Lidia Morawska, Queensland University of Technology (Australia) Will we be surrounded by sensors monitoring every molecule polluting our air?		
12:10-1:10	**Expert panel discussion: Sensing for Cities of the Future** Prof. Hwa-yaw TAM, Dr. Subhash Challa, Prof. Benjamin J. Eggleton Prof. Stuart Bradley, Prof. Roberto Sabatini, Prof. Heike Ebendorff-Heidepriem **Moderator:** Prof. Lidia Morawska		
1:10-2:10	Lunch		
2:10-3:40	**Concurrent session 11:** **Sensor networks** **Chair:** Prof. Michael Withford Macquarie University, (Australia)	**2:10-3:40**	**Concurrent session 12:** **Wearable sensors** **Chair:** Prof. David V. Thiel, Griffith University (Australia)
2:10-2:35	Prof. Carole Jackson *Curtin University (Australia)* The SKA radio telescope as a massive sensing system	2:10-2:35	Prof. Olga Troynikov, *RMIT University (Australia)* Enabling frontier textile materials for sport and medical sensing applications
2:35-3:00	A/Prof. Alan Wong, *RMIT University (Australia)* UHF partial discharge sensing technology for overhead distribution line monitoring and early detection of fire on power lines	2:35-3:00	A/Prof. Mehmet Rasit Yuce, *Monash University (Australia)* Wearable IoT Sensors Design
3:00-3:25	Prof. Subhash Challa, *SenSen Networks (Australia)* Multi-Sensor Systems Making Smart Cities Smarter	3:00-3:25	Prof. Spas D. Kolev, *University of Melbourne (Australia)* Microfluidic Paper-based Sensors for Environmental Analysis
3:25-4:05	Afternoon tea		
4:05-5:45	**Plenary session 7** **Chair:** A/Prof. Mehmet Rasit Yuce, *Monash University (Australia)* Prof. Kourosh Kalantar-Zadeh, *RMIT University (Australia)* Human gas sensor capsule		
4:45-5:00	Awards and Closing ceremony		

MC^N
Melbourne Centre for **Nanofabrication**

Enabling Australian innovation using micro/nano technologies

CONTACT US

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WHO WE ARE

Melbourne Centre for Nanofabrication (MC^N) is a world class, open access facility dedicated to supporting Australian innovation in micro and nano technologies. Think of us as an extension of your own laboratory – providing you with specialised facilities, tools and equipment to undertake projects in solar energy, medical bionics, drug delivery and more.

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