

Melbourne, Australia, 5 – 7 December 2016

EMERGING ENERGY TECHNOLOGIES SUMMIT AND EXHIBITION

Hosted by the International Innovative Research Network



SUMMIT CHAIRS



Prof. Douglas MacFarlane
Monash University



Prof. Maria Forsyth
Deakin University

COMMITTEE MEMBERS



A/Prof. Lu Aye
University of Melbourne



A/Prof. Rachel Caruso
University of Melbourne



Dr. Wallace Wong
University of Melbourne



Dr. Adam Best
CSIRO



Dr. Mei Gao
CSIRO



Dr. Alexe Bojovschi
RMIT University



Dr. Yulin Zhong
Griffith University



Dr. Tu Le
iiRNet



SUMMIT INFORMATION

● Registration desk

The registration desk will be open in the foyer on the ground floor of Mercure Melbourne Treasury Gardens hotel, 13 Spring street, Melbourne, at the following times:

Monday 5 December

8:00am to 5:00pm

Tuesday 6 December

8:45am to 5:00pm

Wednesday 7 December

8:45am to 3:00pm

● 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 EETSE'16 committee members. If you need urgent medical assistance, the hotel staff can also assist.

● Transport

Taxi can be arranged by the hotel reception on the ground level of the hotel. Parliament train station and tram stops are within walking distance. City Circle tram is free but other transports required Myki cards.

● Abstracts

Abstracts can be downloaded from the summit website (www.eetse16.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. 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, pins or blue tak to fix your portrait (vertical) poster to the allocated poster board in the morning on your presentation day. Please do not move the poster board numbers.

● Catering

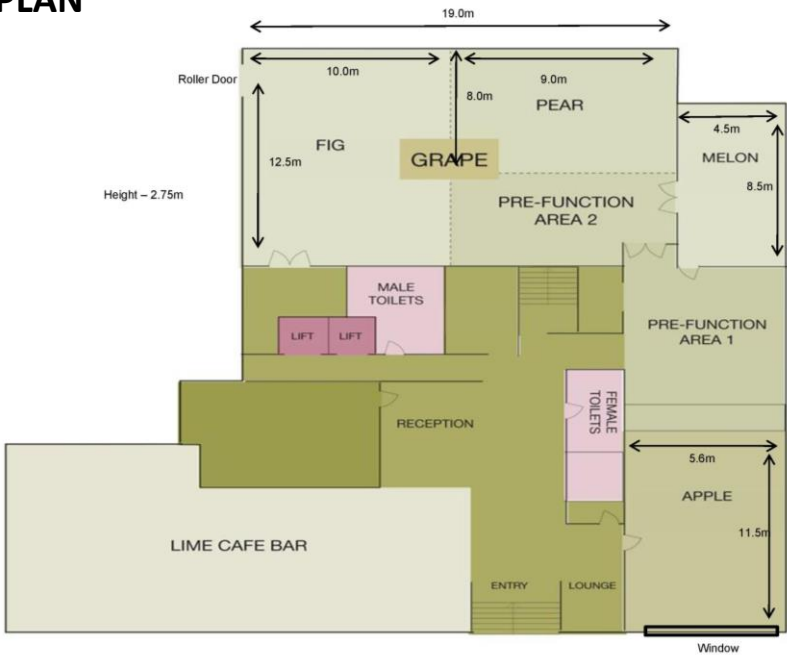
The following catering is included in the summit registration: all morning teas, lunches, and afternoon teas.

The summit dinner is NOT included in the registration fee.

● Luggage storage

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

VENUE FLOOR PLAN



Plenary sessions will be held in the Grape room (Fig + Pear). Concurrent sessions 1, 3, 5, 7, 9, 11, and 13 will be held in the Fig room. Concurrent session 2, 4, 6, 8, 10, 12, and 14 will be held in the Pear room. Morning teas, lunches and afternoon teas will be served at the Lime Café Bar.

DINNER FUNCTION

Dinner function will be hold at the Pavilion in Fitzroy Gardens, 7 minutes walk from the summit venue.



SUMMIT PROGRAM - 5 December			
8:00-8:50	Registration		
8:50-9:00	Opening ceremony		
9:00-11:00	Plenary session 1 Chair: Prof. Maria Forsyth, <i>Deakin University (Australia)</i>		
9:00-9:40	Prof. Thuc-Quyen Nguyen, <i>University of California, Santa Barbara (USA)</i> Solution-processed organic solar cells: Current progress and challenges		
9:40-10:20	Dr. Jun Liu, <i>Pacific Northwest National Laboratory, (USA)</i> Challenges for large scale energy storage and transportation		
10:20-11:00	Prof. Guoxiu Wang, <i>University of Technology Sydney (Australia)</i> Rechargeable batteries for renewable energy storage and conversion		
11:00-11:30	Morning tea		
11:30-12:45	Concurrent session 1: Photovoltaics Chair: Prof. Thuc-Quyen Nguyen, <i>University of California (USA)</i>	11:30-12:45	Concurrent session 2: Materials for energy storage Chair: Prof. Guoxiu Wang, <i>University of Technology Sydney (Australia)</i>
11:30-11:55	Prof. Udo Bach, <i>Monash University (Australia)</i> Dye-sensitized and perovskite solar cells	11:30-11:55	A/Prof. Rachel Caruso, <i>University of Melbourne (Australia)</i> Controlling the morphology of materials for Li-based batteries
11:55-12:20	Prof. Mats Andersson, <i>University of South Australia (Australia)</i> Polymeric interface materials and morphology control in polymer solar cells	11:55-12:20	Prof. Jose Alarco, <i>Queensland University of Technology (Australia)</i> Considerations for industrial scale up of battery material manufacture
12:20-12:45	Prof. Mark Thompson, <i>University of Southern California (USA)</i> Getting around the current-voltage trade off in organic solar cells	12:20-12:45	A/Prof. Patrick Howlett, <i>Deakin University (Australia)</i> Electrolytes for advanced metal batteries – Towards high performance, high energy density devices
12:45-1:45	Lunch		

SUMMIT PROGRAM - 5 December			
1:45-3:25	Concurrent session 3: Photovoltaics Chair: Prof. Udo Bach, <i>Monash University (Australia)</i>	1:45-3:25	Concurrent session 4: Materials for energy generation and storage Chair: A/Prof. Rachel Caruso, <i>University of Melbourne (Australia)</i>
1:45-2:10	A/Prof. Sang Hyuk Im, <i>Kyung Hee University (Korea)</i> Recent progress of organic-inorganic hybrid perovskite solar cells	1:45-2:10	Prof. Ian Chen, <i>Deakin University (Australia)</i> New battery technology for electrical energy storage
2:10-2:35	Dr. Fiona Scholes, <i>CSIRO (Australia)</i> Powering the future with printed solar films	2:10-2:35	Prof. Gunther Andersson, <i>Flinders University (Australia)</i> Clusters on semiconductor surfaces for novel catalysts
2:35-3:00	Dr. Ajay Pandey, <i>Queensland University of Technology (Australia)</i> Energy conversion and energy up-conversion in singlet fission sensitized organic heterojunctions	2:35-3:00	A/Prof. Aijun Du, <i>Queensland University of Technology (Australia)</i> Computational discovery and design of 2D materials with high charge carrier mobility and excellent catalytic properties for energy applications
3:00-3:25	Dr. Kylie Catchpole, <i>Australian National University (Australia)</i> High efficiency perovskite on silicon tandem solar cells	3:00-3:25	Dr. Porun Liu, <i>Griffith University (Australia)</i> A facile fabrication of doped metal oxide electrocatalysts for efficient energy conversion application
3:25-3:55	Afternoon tea		
3:55-5:35	Concurrent session 5: Photovoltaics Chair: Dr. Mei Gao, <i>CSIRO (Australia)</i>	3:55-5:25	Concurrent session 6: Solar thermal Chair: Sarah Miller, <i>CSIRO (Australia)</i>
3:55-4:20	Prof. Samuel Graham, <i>Georgia Institute of Technology (USA)</i> Robust barrier technology for thin film photovoltaics	3:55-4:20	Prof. Wojciech Lipiński, <i>Australian National University (Australia)</i> Solar thermal energy: From power generation to kerosene synthesis
4:20-4:45	A/Prof. Hongxia Wang, <i>Queensland University of Technology (Australia)</i> Third generation solar cells - Challenges and opportunities	4:20-4:45	Prof. Gus Nathan, <i>University of Adelaide (Australia)</i> Emerging Technologies in Concentrating solar thermal for the new economy
4:45-5:10	Prof. David Lewis, <i>Flinders University (Australia)</i> Interface integrity in organic solar cells	4:45-5:10	Prof. Cong Wang, <i>Beihang University (China)</i> Solar thermal power and key material technology
5:10-5:35	Dr. Wallace Wong, <i>University of Melbourne (Australia)</i> High performance organic solar cell materials – Design, synthesis and scale-up	5:10-5:25	Dr. Lei Wang, <i>Beihang University (China)</i> The correlation between uniaxial negative thermal expansion and negative linear compressibility in Ag ₃ [Co(CN) ₆]
5:35-6:35	Poster session		

SUMMIT PROGRAM – 6 December			
9:00-10:20	Plenary session 2 Chair: A/Prof. Jacek Jasieniak, <i>Monash University (Australia)</i>		
9:00-9:40	Prof. Dan Li, <i>Monash University (Australia)</i> Rethinking the challenges in supercapacitors: What makes graphene attractive?		
9:40-10:20	Prof. Chun-Zhu Li, <i>Curtin University of Technology (Australia)</i> Bioenergy and biofuels in the carbon-constrained future		
10:20-10:50	Morning tea		
10:50-12:35	Concurrent session 7: Energy storage Chair: Prof. Jose Alarco, <i>Queensland University of Technology (Australia)</i>	10:50-12:35	Concurrent session 8: Bioenergy Chair: Prof. Chun-Zhu Li, <i>Curtin University of Technology (Australia)</i>
10:50-11:15	Dr. Anthony Burrell, <i>National Renewable Energy Lab (USA)</i> Renewables, electric vehicles and energy storage	10:50-11:05	A/Prof. Matthew Watson, <i>University of Canterbury (New Zealand)</i> Feedstock options for renewable jet fuel production in New Zealand
11:15-11:40	Dr. Dominique Guyomard, <i>Institut des Materiaux Jean Rouxel (France)</i> Renewable organic batteries	11:05-11:20	Dr. Esther Wilcox, <i>National Renewable Energy Lab (USA)</i> From concept to pilot-scale demonstration: Thermochemical biomass conversion research at the National Renewable Energy Laboratory
11:40-12:05	Dr. Yulin Zhong, <i>Griffith University (Australia)</i> Mechanically-assisted electrochemical production of graphene oxide for energy storage application	11:20-11:35	Dr. Patil Balachandra, <i>Indian Institute of Science (India)</i> Bioenergy systems for sustainable energy access
12:05-12:20	Dr. S Dasappa, <i>Indian Institute of Science (India)</i> Three dimensional computational fluid dynamic analysis of producer gas fuelled solid oxide fuel cell operation	11:35-11:50	Marc Pomeroy, <i>National Renewable Energy Lab (USA)</i> Method for hot real-time analysis of pyrolysis vapors at pilot scale
		11:50-12:05	Mitchell Nothling, <i>University of Melbourne (Australia)</i> Bioinspired catalysts- mimicking the active site of enzymes
12:20-12:35	Adewale Odukumaiya, <i>Georgia Institute of Technology (USA)</i> A novel hybrid compressed-gas/pumped-hydro ground-level integrated diverse energy storage system	12:05-12:20	Dr. Chanakya Hoysall, <i>Indian Institute of Science (India)</i> Making bioenergy sustainable by creating value added by-products – transforming biomethanation outputs
12:35-1:35	Lunch		

SUMMIT PROGRAM - 6 December			
1:35-3:15	Concurrent session 9: Energy storage Chair: Prof. Dan Li, <i>Monash University (Australia)</i>	1:35-3:20	Concurrent session 10: Energy generation and general session Chair: Prof. Ian Chen, <i>Deakin University (Australia)</i>
1:35-2:00	Prof. Ken Ostrikov, <i>CSIRO and Queensland University of Technology (Australia)</i> Crossing energy borders: from nano-processing using plasmas to nano-plasmas	1:35-2:00	Prof. Alan Chaffee, <i>Monash University (Australia)</i> Heterogeneous catalysis with MOFs for CO ₂ conversion to fuels
2:00-2:25	Prof. Francesca Iacopi, <i>University of Technology Sydney (Australia)</i> Supercapacitors on silicon and perspectives for integrated energy storage	2:00-2:25	Dr. Jörg Schlüter, <i>Deakin University (Australia)</i> Australian opportunities for small wind turbines
		2:25-2:50	Dr. Gregory Knowles, <i>Monash University (Australia)</i> Pellet shaped polyethyleneimine type sorbents for CO ₂ post combustion capture
2:25-2:50	Prof. Eddie Zhang, <i>Griffith University (Australia)</i> The development of an all-climate sodium ion battery	2:50-3:05	Dr. Tamsin Lee, <i>University of Oxford (United Kingdom)</i> Predicting key features of a substation without monitoring
2:50-3:15	Parama Chakraborty Banerjee, <i>Monash University (Australia)</i> Focused ion beam reduced graphene oxide micro-supercapacitors with unprecedented energy and power densities	3:05-3:20	Dr. Dario Buso, <i>Davies Collison Caves (Australia)</i> Do you want to maximise intellectual property protection of your research? Then don't do this...!
3:20-3:50	Afternoon tea		
3:50-5:30	Concurrent session 11: Materials for energy storage and generation Chair: Dr. Wallace Wong, <i>University of Melbourne (Australia)</i>	3:50-4:55	Concurrent session 12: Smart grids Chair: Dr. Alexe Bojovschi, <i>RMIT University (Australia)</i>
3:50-4:15	A/Prof. Antonio Tricoli, <i>Australian National University (Australia)</i> Scalable flame synthesis of ultra-transparent and robust nano-layers for water oxidation catalysis	3:50-4:15	Prof. Nando Ochoa, <i>University of Manchester (UK) and University of Melbourne (Australia)</i> Grid independent customers: Challenges and opportunities of PV and storage
4:15-4:40	Dr. Enrico Della Gaspera, <i>RMIT University (Australia)</i> Solution processing of metal oxide nanostructures for plasmonics and optoelectronics	4:15-4:40	Dr. Ariel Liebman, <i>Monash University (Australia)</i> Techno-economic modelling the integration of renewables into the grid
4:40-5:05	Dr. Dongchen Qi, <i>La Trobe University (Australia)</i> Quantitative femtosecond charge transfer dynamics at organic/electrode interfaces studied by core-hole clock spectroscopy	4:40-4:55	Dr. Pervez Hameed Shaikh, <i>Mehran University of Engineering & Technology (Pakistan)</i> Direct current micro grid bus voltage regulation for photovoltaic and wind integrated systems
5:05-5:30	Dr. Joel van Embden, <i>RMIT University (Australia)</i> Copper antimony sulfide: Nanomaterials, thin films, and solar sells		
6:15-10:00	Dinner		

SUMMIT PROGRAM – 7 December			
9:00-10:20	Plenary session 3 Chair: A/Prof. Jenny Pringle, <i>Deakin University (Australia)</i>		
9:00-9:40	Prof. Tetsuya Osaka, <i>Waseda University (Japan)</i> Emergency target for energy storage		
9:40-10:20	Prof. Douglas MacFarlane, <i>Monash University (Australia)</i> Progress towards hydrogen and ammonia from renewables		
10:20-10:50	Morning tea		
10:50-12:45	Concurrent session 13: Photovoltaics Chair: Prof. Mats Andersson, <i>University of South Australia (Australia)</i>	10:50-12:45	Concurrent session 14: Materials for energy generation and storage Chair: Prof. Douglas MacFarlane, <i>Monash University (Australia)</i>
10:50-11:15	Prof. Joe Shapter, <i>Flinders University (Australia)</i> Nanocarbons in novel solar cells	10:50-11:15	A/Prof. Jenny Pringle, <i>Deakin University (Australia)</i> Ionic liquid-based redox electrolytes for thermal energy harvesting
11:15-11:40	A/Prof. Jacek Jasieniak, <i>Monash University (Australia)</i> Interface Engineering of Solution-Processed optoelectronic materials & devices	11:15-11:40	A/Prof. Teppei Yamada, <i>Kyushu University (Japan)</i> Enhancement of seebeck coefficient of thermo-electrochemical cell by supramolecular chemistry
11:40-12:05	Prof. Baohua Jia, <i>Swinburne University of Technology (Australia)</i> Nanophotonics solar cells	11:40-12:05	Prof. Siu Fung Yu, <i>Hong Kong Polytechnic University (Hong Kong)</i> White-light light-emitting-diodes using carbon nanodots
12:05-12:30	A/Prof. Yasuhiro Tachibana, <i>RMIT University (Australia) and Osaka University (Japan)</i> Semiconductor nanocrystals and their application to photovoltaic devices	12:05-12:30	Dr. Jie Zhang, <i>Monash University (Australia)</i> Is the Imidazolium Cation a Unique Promoter for electrocatalytic reduction of carbon dioxide?
12:30-12:45	A/Prof. Prashant Sonar, <i>Queensland University of Technology (Australia)</i> Molecular engineering approach for designing nonfullerene acceptors	12:30-12:45	Jun-Seo Jeon, <i>Korea Advanced Institute of Science and Technology (South Korea)</i> A scale factor model for the design of spiral coil-type horizontal ground heat exchangers
12:45-1:45	Lunch		
1:45-2:00	Award and closing ceremonies		

POSTER PRESENTATION LIST

- | | | | |
|-----|---|-----|---|
| P01 | Prof. Chul H. Jo, <i>Inha University (Korea)</i>
Application technology of TEC (Tidal Energy Converter) in low velocity environmental regions | P16 | Dr. Dibakar Rakshit, <i>Indian Institute of Technology Delhi (India)</i>
Fabric heat-gain assessments of building walls with alternative options of PCM and insulation |
| P02 | Dr. Madeleine Dupont, <i>Deakin University (Australia)</i>
Optimising the performance of thermo-electrochemical cells | P17 | Dr. Dibakar Rakshit, <i>Indian Institute of Technology Delhi (India)</i>
Efficacy of CFD in estimating thermal behaviour of a naturally ventilated house |
| P03 | Kiron Neale, <i>University of Oxford (United Kingdom)</i>
Energy, culture and institutional networks: Residential solar energy and islandic energy regimes | P18 | Dr. Tamsin Lee, <i>University of Oxford (United Kingdom)</i>
A genetic algorithm approach for modelling low voltage network demands |
| P04 | Siyi Cheng, <i>Huazhong University of Science and Technology, (China)</i>
Nitrogen-doped activated carbon derived from biomass for high performance lithium-ion supercapacitor | P19 | Jun Rao, <i>Deakin University (Australia)</i>
Proton Conducting Membranes for Energy Applications |
| P05 | Danah Al-Masri, <i>Deakin University (Australia)</i>
New Cobalt-based Redox Active Ionic Electrolytes for Thermal Energy Harvesting. | P20 | Munkhbayar Batmunkh, <i>University of Adelaide (Australia)</i>
High-Performance Perovskite Solar Cells Based on Carbon Nanotubes Incorporated TiO ₂ Nanofiber Photoelectrodes |
| P06 | Kristin Smith, <i>National Renewable Energy Laboratory (USA)</i>
Effect of feedstock, temperature and residence time on pilot-scale pyrolysis products | P21 | Can Gao, <i>University of Melbourne (Australia)</i>
Tuning Photon Up-conversion with New Molecular Geometries |
| P07 | Dr. Thilini Ishwara, <i>University of New South Wales (Australia)</i>
Hybrid organic-inorganic perovskite solar cells: Investigations in varying the metal-oxide and polymer additives | P22 | Abuzar Taheri, <i>Deakin University (Australia)</i>
Development of nanoparticle-based electrolytes for thermal energy harvesting |
| P08 | Dr. Patil Balachandra, <i>Indian Institute of Science (India)</i>
Will the integration of renewables enable sustainable transition of Indian electricity system? | P23 | Munkhjargal Bat-Erdene, <i>Flinders University (Australia)</i>
Synthesis of Phosphorene and Its Use in Solar Cells |
| P09 | Yundong Zhou, <i>Deakin University (Australia)</i>
Concentrated Li-doped plastic crystal and polymer nanofibre based composite electrolytes: Ion transport and Li battery studies | P24 | Mujuna Abbas, <i>University of Indonesia (Indonesia)</i>
Study of synthesizing 2,5-dimethylfuran (DMF) from nature cellulose for alternative fuel usage |
| P10 | Dr. Chanakya Hoysall, <i>Indian Institute of Science (India)</i>
Meeting the energy needs of the village using biomass - concept to implementation | P25 | Basudhrity Banerjee, <i>Indian Institute of Technology Guwahati (India)</i>
Hydrogen generation from ethylene diamine bisborane along with different ionic liquids |
| P11 | Shengjuan Jiang, <i>Curtin University of Technology (Australia)</i>
Pyrolysis of mallee wood residue after washing with bio-oil | P26 | Hyung Il Park, <i>Korea Advanced Institute of Science and Technology (Korea)</i>
Performance Enhancement in Organic Solar Cells with Gold Nanoparticle Clusters |
| P12 | Faezeh makhlooghiazad, <i>Deakin University (Australia)</i>
Phase behaviour and electrochemical performance of phosphonium plastic crystals mixed with sodium salt | P27 | Bolong Zhang, <i>University of Melbourne (Australia)</i>
New organic dyes for luminescent solar concentrators |
| P13 | Dr. Dechan Angmo, <i>CSIRO (Australia)</i>
Roll-to-roll printed silver nanowire semitransparent electrodes for fully ambient solution-processed organic solar cells | P28 | Dr. Doojin Vak, <i>CSIRO (Australia)</i>
3D Printer Based Slot Die Coater as a Lab-to-Fab Translation Tool for Solution Processed Solar Cells |
| P14 | Kalani Periyapperuma, <i>Deakin University (Australia)</i>
Towards higher energy density redox flow battery: Imidazolium ionic liquid for Zn electrochemistry under flow environment | P29 | Dr. Andrew Basile, <i>Deakin University (Australia)</i>
Highly concentrated inorganic-organic ionic liquid electrolyte for extensive sodium metal plating and stripping |
| P15 | Dr. Ruidi Bai, <i>Sichuan University (China)</i>
Air bubble frequency distribution in the cavity zone | P30 | Hasitha Weerasinghe, <i>CSIRO (Australia)</i>
Lifetime assessment of printed photovoltaic devices |
| | | P31 | Veena Chaudhary, <i>IIT Roorkee (India)</i>
Exergetic Evaluation of Small DI Diesel Engine |

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