

2023 Asia-Pacific Solar Research Conference

5th, 6th & 7th December, RMIT City Campus, Building 80

5th Dec Tues Day 1	7.45am onwards					Registration opens, Building 80 Level 2
	8.45 - 9.00					Opening Ceremony, Welcome to Country , Wurundjeri Elder Perry Wandin, Location: Level 2 - Room 7
	9.00 - 9.10					Welcome from 2023 APSRC Conference Chair, Assoc. Prof. Rebecca Yang , Location: Level 2 - Room 7
	9.10 - 9.15					Welcome by Vice Chancellor Prof. Alec Cameron, RMIT University , Location: Level 2 - Room 7
	9.15 - 9.30					Formal Opening of 2023 APSRC by The Hon. Lily D'Ambrosio , Minister for Climate Action, Minister for Energy and Resources, Minister for State Electricity Commission, Location: Level 2 - Room 7
	9.30 – 11.00					DAY 1 Plenary Session (1), Location: Level 2 - Room 7 Session chair: Rebecca Yang
	9.30am					Dan Sturrock, ARENA, Director Business Development & Transactions - "ARENA's evolving ambitions and achievements in Solar PV"
	10.00am					Prof. Anita Ho-Baillie, John Hooke Chair of NanoScience/ARC Future Fellow, Sydney University - "Perovskite multi-junction solar cells"
	10.30am					Prof. Josh Byrne, Dean, Sustainable Futures, Curtin University - "A 10 year solar journey"
	11.00 – 11.30					Morning Tea , Building 80 Level 4
11.30 – 1.00					CONCURRENT SESSIONS	
	PV - Characterisation Location: Lvl 2 - Room 007 Session Chair: Anyao Liu & Di Yan	REDI - Markets, storage Location: Lvl 2 - Room 003 Session Chair: Rob Passey	CST & PHC (1) Location: Lvl 3 - Room 021 Session Chair: Wil Gardner	WORKSHOP SESSION Solar Energy in the Water industry Location: Lvl 3 - Room 006 Session chair: Mikel Duke	BIPV Location: Lvl 3 - Room 015 Session Chair: David Ferrari	
11.30 - 11.45	Zubair Abdullah-Vetter , Advanced analysis of IQE measurements of GaAs solar cells using machine learning	Farhad Billimoria , Electricity price hedging and fat tails in renewables-rich grids	Timothy Anderson , A comparison of fluidised bed solar receiver geometries	Amr Omar , Uncovering the feasibility of a double-glazed solar still	Baojia Li , Demonstration and data analyze for a Zero Emission Building in Beijing, China	
11.45 - 12.00	Gaia Maria Javier , AI-extraction of spatial photoluminescence and series resistance from electroluminescence images	George Furrer , System-Wide Effects of 24/7 Carbon-Free Energy in the NEM	Daniel Potter , Simulation of the ASTRI demonstration particle receiver during on-sun testing	Kaige Wang , Supporting Water Utilities Renewable Energy Transition with PV and Batteries Storage System		
12.00 - 12.15	Soma Zandi , Implied voltage images of each subcell in perovskite/Si tandem solar cells using luminescence measurement	Timothy Weber , Estimating Intra-Day to Long-Term Energy Storage Needs for Grids Dominated by Solar and Wind	Yifan Guo , Scalable nanolayer for CSP absorber coatings enhancement at high temperatures	Mikel Duke , Solar Energy in Industrial Water and Wastewater Management (Task 62): Key Findings from Subtask C	Gavin Liu , Solar Energy Buildings: an update from IEA SHC Task 66	
12.15 - 12.30	Gaia Maria Javier , Enhancing luminescence images through deep learning-based point spread function correction	Dylan McConnell , Understanding renewable curtailment in the National Electricity Market	Leok Lee , CSP integration for high temperature processing with heat storage and its techno-economic assessment	Panel discussion • Alex Peel (DEECA), • Jeff Rigby (Victoria University) • Megan Kreutzer (Coliban Water)	Chaoxiang Zhang , Transforming BIPV Product Information into a Digital Format	
12.30 - 12.45	Zubair Abdullah-Vetter , Using latent ODE-NNs to predict the degradation of HJT PV modules at the end of damp heat tests	Nargess Nourbakhsh , An Online Tool for Future E-Mobility Scenarios and Their Potential Impact on Future NEM Demand	Wil Gardner , Update on the ASTRI High-Temperature Solar Sodium Facility		Yukun Zang , Fire Safety Requirements of the application of BIPV in Australia	
12.45 - 1.00					Tharushi Samarasinghalage , Multi-objective optimization of BIPV envelope design: BIPV Cladding application	
1.00 – 1.30	Lunch , Building 80 Level 4					

5th Dec Tues Day 1	1.00 – 1.30	Lunch, Building 80 Level 4			
	1.30 – 3.00	Day 1 Plenary Session (2), Location: Level 2 - Room 7 Session chair: Mike Roberts			
	1.30 – 2.00	Stan Krpan, CEO, Solar Victoria - "Supporting the household energy transition through solar and electrification"			
	2.00 – 2.30	Ruby Heard, Founder, Alinga Energy Consulting - "Solar and First Nations Communities – Opportunities & challenges of the clean energy transition"			
	2.30 – 3.00	Lyu Fang, Senior Engineer, Institute of Electrical Engineering, China Academy of Sciences - "China PV Recycling & Circular Economy Status"			
	3.00 – 3.30	Afternoon Tea, Building 80 Level 4			
	3.30 – 5.00	CONCURRENT SESSIONS			
		Silicon solar cells and modules Location: Lvl 2 - Room 007 Session Chair: Ning Song	REDI - Resource assessment and potential Location: Lvl 2 - Room 003 Session Chair: Anna Bruce	WORKSHOP SESSION PV for Zero Emission buildings in 2050 Location: Lvl 3 - Room 006 Session Chair: Zhengen Ren	WORKSHOP SESSION Key Considerations in the adoption of PV Water Heaters from IEA SHC TASK 69 Location: Lvl 3 Room 005 Session Chair: Robert Taylor
	3.30 – 3.45	Muhammad Umair Khan , Understanding potential-induced degradation (PID) degradation of the shunting type and its recovery	Anna Nadolny , Solar PV and Wind Heat Maps for Australia	Wen Liu , Optoelectronic Agriculture contributes to Carbon Neutralization and Rural Revitalization	Professor Robert Taylor , Task 69 & Special Session Moderator, Key considerations in the adoption of PV Water Heaters (5 min.); Dean Clift , Introduction to PV Water Heating Technologies, design for safety and optimal energy utilization (25 min.); Dr Baran Yildiz , Strategies and value streams for domestic electric water heating systems to soak up excess PV generation (25 min.)
	3.45 – 4.00	Xinyuan Wu , Addressing Sodium Ion-Related Degradation in SHJ Cells by the Application of nanoscale barrier layer	Naveed Rehman , Hybrid Ray-Tracing Model for Solar Energy Potential Assessment		
	4.00 – 4:15	Tien Le , Industrial Czochralski n-type Si wafers: gettering effectiveness and possible bulk limiting defects	Russell Kindler , Solar Potential Analysis and Benefits for Diverse Residential Groups in Australia	Michael Schmidt , Climate-Neutral Buildings in Germany by 2045	
	4:15 – 4.30	Jesus Ibarra Michel , Towards low-damage transparent conductive oxide sputtering for high-efficiency photovoltaics	Anna Nadolny , Pumped Hydro Atlas progress		Panel session: Key considerations in the adoption of PV Water Heaters (45 min.), <ul style="list-style-type: none"> • Ruchika Deora - C4NET Program Director, • John Theunissen - C4NET Technical Advisor; • Paul Corkill - Executive Director, Policy, Programs and Industry Development; • Jianhua Fan, Danish Technical University
4.30 – 4.45	Aeron Johns , Mechanical Load Testing for High Wind Load on Novel PV Deployment Technology	Russell Kindler , Validation of SunSPOT Shading Methods and the impact on PV generation	Shengping Li , Pathways towards net-zero emission residential buildings in Melbourne		
4.45 – 5.00	Li Wang , Study on material requirement along the silicon production chain for terawatt scale PV deployment	Sisi Wang , Impact of different PV mounting systems on yield, material consumption and emissions intensity	Zhengen Ren , Pathways for triple zero housing in Australia		
5.00 - 5.30	APVI AGM, Location: Level 3 Room 011				
5.30 - 6.30	ARENA Networking Drinks, Level 4				

6th Dec Wed Day 2	8.00am	Registration opens, Building 80 Level 2			
	9.00 – 10.30	DAY 2 Plenary Session (1), Location: Level 2 - Room 7 Session chair: Rong Deng			
	9.00am	Rob Rendell, Principal Consultant, RMCG - "Solar farms and conflict with prime agricultural land"			
	9.30am	Michelle McCann, Partner, PV Lab Australia - "A decade of testing solar modules in Australia: Things we have seen"			
	10.00am	Dr. Pablo R. Dias, SolarCycle - "What could a circular economy for solar look like?"			
	10.30 – 11.00	Morning Tea, Building 80 Level 4			
	11.00 – 12.30	Poster Session, Location Building 80 Level 3			
		CONCURRENT SESSIONS			
		WORKSHOP SESSION Vehicle Integrated PV Location: Lvl 3 - Room 021 Session chair: Jessica Yajie Jiang	WORKSHOP SESSION Space PV Location: Lvl 3 Room 005 Session chair: Ned Ekins-Daukes	WORKSHOP SESSION Building Integrated PV - Product Innovation Location: Lvl 2 Room 002 Session chair: Steve Blume	
	11.00 – 11.15	Bonna Newman, Solar Charging Systems for the future EV Market	Mitsuru Imaizumi, Space Solar Cells -Requirements and Current Technologies	Enver Kolac, BIPV: capabilities of an architectural product towards sustainable facades.	
	11.15 – 11.30	Yuanxun Liao, Super-Efficient Coloured PV for Vehicles		Anthony Breach, The Possibilities of Solar Façades	
	11.30 – 11.45	Anna Matthews & Conor Rush-Fellay, SUNSWIFT: The solar car experience		Anh Huy Tuan Le, Temperature-dependent performance of 50 µm thick SHJ solar cells for space applications	Roger Shin, Leading Innovative Energy Generating Façade with BIPV
	11.45 – 12.00	Kenji Araki, PV on the vehicles in Asia-Pacific regions – Performance and Energy yield		Jamie Harrison, Computational Optimization of Bragg Reflectors for InGaP/GaAs/Ge triple-junctions	Kamal Alameh, Building Integrated Photovoltaic (BIPV) systems for future zero-net-energy buildings
	12.00 – 12.15	Dr Zi Ouyang, Commercial prospective of PV solar powered vehicles		Dang-Thuan Nguyen, A Research on Perovskite Solar Cells' Tolerance under Proton Radiations	Christopher Cole, Design, Construction and BIPV
12.15 – 12.30				Heiko Koenig, Beauty + Power, plus Robustness	
12.30 – 1.30	Lunch, Building 80 Level 4				

6th Dec Wed Day 2	12.30 – 1.30	Lunch, Building 80 Level 4					
	1.30 – 3.00	CONCURRENT SESSIONS					
		Perovskite solar cells 1 Location: Lvl 2 - Room 007 Session chair: Li Wang & Felix Gavot	REDI - PV performance and modelling Location: Lvl 2 - Room 003 Session Chair: Roger Dargaville	PV Recycling Academic Location: Lvl 3 Room 014 Session Chair: Michelle McCann	WORKSHOP SESSION Agri-PV Location: Lvl 3 Room 005 Session chair: Ian Thomas	WORKSHOP SESSION PV Manufacturing Location: Lvl 3 Room 015 Session chair: Nathan Chang	WORKSHOP SESSION BIPV Fire Safety Location: Lvl 2 Room 002 Session chair: Ron Wakefield
	1.30 – 1.45	Luke Sutherland, Revolutionizing Scalable Perovskite Solar Cells with Isostatically Deposited Carbon Electrodes	Caixia Li, Comparative study on the prediction of photovoltaic power output between physical and machine learning	Brendan Wright, Automated Photovoltaic Module Quality Assessment from Luminescence Images	Martin Amidy, Introduction to Agrivoltaics	Dan Sturrock, ARENA, 'The role of local manufacturing within ARENA's ultra-low-cost-solar vision'	
	1.45 – 2.00	Keqing Huang, Structural and Chemical Crosslinking Interface for Efficient and Stable Perovskite Solar Cells	Shukla Poddar, Global-Scale Non-Linear Modelling of Photovoltaic Module Degradation		Karin Stark, Co-existence with farming, an agrivoltaic future	Michelle Vaqueiro Contreras, Solar PV Supply Chain and Australia's Bottom-up Cost Model	
	2.00 – 2.15	Jie Zhao, Formamidinium-Cesium Perovskite Solar Cells and Modules from Lead Acetate-Based Precursor	Fiacre Rougieux Rougieux, Actionable Insights: A Multi-algorithm approach to PV Performance Diagnostics	Alejandra Nunez Madrigal, Framework contributing to the adoption of CE strategies in PV waste management in Australia	Sabine Tausz-Posch, Agrivoltaics in vineyards	Muriel Watt, Prospects and Requirements for Australian Manufacturing.	Panel discussion • Andrew Cialini (Victorian Building Authority) • Sean Godsell (Sean Godsell Architects) • Richard Kathage (Australian Building Codes Board) • Wayne Liddy, Australian Institute of Building Surveyors • MC Hui (RED Fire Engineers) • Kjetil Pedersen (STRATEG Consulting)
	2.15 – 2.30	Narendra Pai, Low-temperature and ambient processable all-inorganic solar cells	Arastoo Teymouri, Deflection of utility modules on 5B™'s mounting system under static wind conditions	Emily Suyanto, Open and closed-loop recycling of End-of-Life PV: An analysis from the circular economy perspective	Panel questions and discussion (15min)	Richard Petterson, Manufacturing Renewables - a Lasting Legacy	
	2.30 – 2.45	Christopher G. Bailey, Effect of Organic Spacer Cation on Dark Excitons in 2D Perovskites via Magneto-Optical Spectroscopy	Phillip Hamer, Improved thermal modelling of the 5B MAVERICK system: impact of sky temperature	Olivia Bowen, Comparison of Organic Solvents for Chemical Recycling of Photovoltaic Panels		Adrian Turner, PV Manufacturing in Australia	
	2.45 – 3.00	Meng Zhang, Methylammonium-free perovskite inks for gas-quenching fabrication of perovskite films and solar cell	Svetlana Tkachenko, CFD modelling of the 5B MAVERICK system and temperature variations across PV modules			Panel discussion	
	3.00 – 3.30	Afternoon Tea, Building 80 Level 4					
3.30 – 5.00	CONCURRENT SESSIONS						
	Perovskite solar cells 2 Location: Lvl 2 - Room 007 Session chair: Lachlan Black & Meng Zhang	REDI - Manufacturing, EoL, Sustainable transitions Location: Lvl 2 - Room 003 Session Chair: Mike Roberts	WORKSHOP SESSION PV Recycling/Circular Economy Location: Lvl 3 Room 014 Session chair: Rong Deng	WORKSHOP SESSION Agri-PV (2) Location: Lvl 3 Room 005 Session chair: Ian Thomas	WORKSHOP SESSION PV forecasting and firm power Location: Lvl 3 Room 015 Session chair: John Boland	WORKSHOP SESSION BIPV Market Opportunities Location: Lvl 2 Room 002 Session chair: Rebecca Yang	
3.30 – 3.45	Chwen-Haw Liao, Quasi-two-dimensional perovskites for stable single junction and perovskite-silicon double junction	Sisi Wang, A roadmap towards emission lean and low-cost PV module manufacturing using decarbonised electricity	Laura Jones, Are we there yet? Need for filling gaps in circular economy approach to PV systems	Bruce Gill, Grazing Agrivoltaics – Microclimate observations and sheep in commercial solar farms	Adrian Grantham, Forecasting a power system with increasing penetration of distributed renewable energy (DER)		
3.45 – 4.00	Guoliang Wang, Hole-selective contact engineering for perovskite single-junction and tandem solar cell	Neeraj Das, End-of-Life Solar Panel Recycling by Using Organic Solvents	Roy Bi, Jinko sustainable strategy and PV recycling technology development	Madeline Taylor, Agrivoltaics and Energy Justice Principles	Warwick Johnston, Firm PV		
4.00 – 4:15	Amit Kessel, Perovskite Patterning via Printed Molecular Templates Towards Scalable Semi-Transparent Solar Cells	Tik Lun Leung, Analysis of the circularity for PV recycling aiming at net-zero in 2050	Nick Florin, Can product stewardship support a circular economy for PV in Australia?	Workshop/discussion (30min)	John Boland, Probabilistic Forecasting for Solar Energy	Panel discussion • Rachael Lee (Spark – North East Link) • Garry Hendrix (ISPT) • Matt McDonnell (architectus) • Simeon Lloyd (Multiplex) • Douglas Sum (Aurecon)	
4:15 – 4.30	Jianghui Zheng, Exploring the Role of ITO Interlayer to Accelerate the Perovskite Commercialization Prospective	David Fernando Silalahi, A zero-carbon, reliable, and affordable energy future in Indonesia					
4.30 – 4.45	Jueming Bing, The synergistic effect of thermal and light stresses on perovskite solar cells	Ahmad Amiruddin, Impact of Electric Vehicle and Renewable Energy Integration in Indonesia's Grid System	Panel discussion (30min)		Panel discussion (45 mins)		
4.45 – 5.00	Gaveshana Sepalage, Scalable Lamination Techniques for Low-Cost Perovskite Solar Cells						
6.00 -9.00	Conference Dinner Location: Melbourne Town Hall						

7th Dec Thurs Day 3	8.00am	Registration opens Building 80 Level 2			
	9.00 – 10.30	Day 3 Plenary Session (1), Location: Level 2 - Room 7 Session chair: Roger Dargaville			
	9.00am	Dr. Brett Hallam, UNSW and ITP Renewables Snr. Consultant - "Path towards sustainable, low-cost PV systems for terawatt scale deployment"			
	9.30am	Solomone Fifita, Manager, Pacific Centre for Renewable Energy and Energy Efficiency - "The opportunities and challenges with solar in the energy transition of the Pacific Islands"			
	10.00am	Prof. Thorsten Trupk, Deputy Director ARC Photovoltaics Centre of Excellence, SPREE, UNSW - "Daylight Photoluminescence Imaging for Advanced Inspection of Photovoltaic Systems"			
	10.30 – 11.00	Morning Tea, Building 80 Level 4			
	11.00 – 12.30	CONCURRENT SESSIONS			
		Passivating Contacts Location: Lvl 2 - Room 007 Session chair: Yan Zhu	REDI - DER Performance, Integration and Markets Location: Lvl 2 - Room 003 Session Chair: Baran Yildiz	Concentrating Solar Thermal & Process Heat and Chemistry (2) Location: Lvl 3 - Room 005 Session Chair: Wil Gardner	Solar Buildings Location: Lvl 3 - Room 006 Session chair: Rebecca Yang
	11.00 - 11.15	Daniel Macdonald, (30mins) Industrial silicon solar cells with passivating contacts - TOPCon versus silicon heterojunctions	INVITED: Naomi Stringer, Project MATCH: Supporting power system security with high levels of Distributed Energy Resources	Ramteen Sioshansi, Comparing Concentrating Solar Power and Photovoltaic Solar as Extended- Duration Peaking Resources	Trevor Lee, Mandatory Disclosure of Residential Energy Efficiency Rating in the ACT
	11.15 - 11.30		Phoebe Dennis, Data-driven assessment of DPV inverter behaviour under enhanced voltage management	MAZIAR ARJOMANDI, Wind Loads on Solar Panels	Aravind Poshnath, Suitability Assessment of Energy Allocation Principles in Multi-Owned Buildings
	11.30 - 11.45	Mohamed Ismael, Exceptional Si Surface Passivation of Metal-Oxide Contacts Achieved by Chlorination Using TiCl4	Cynthujah Mohamed Ashraf, Building a robust Disturbance Analysis Tool for Distributed Energy Resources (DERDAT) in an Electricity System	Alfonso Chinnici, Solar-induced mineral carbonation of mine waste: techno-economics and emission analysis	Rebecca Yang, Building Integrated PV: an update from IEA PVPS Task 15
	11.45 - 12.00	Yida Pan, Ex-situ Doping of Polysilicon Hole Contacts via Electron-Beam Boron Evaporation	Navid Haghdad, Analysis of 240,000 distributed PV systems installed in Greater Sydney area between 2009 and 2023	Amr Omar, Does a Barassi Line exist to divide CSP- MED and PV-RO in Australia?	Shayan Naderi, Aggregated minimum demand mitigation and maximum demand reduction in the national electricity market
	12.00 - 12.15	Gabriel Bartholazzi, Alternative interlayer boosting the performance of MoOx hole- selective contacts	Ellie Kallmier, PV system design for resilience: Impact of bushfire season on PV output		Huey Jean Tan, Enhancing Australia's Weather and Climate Data for Benchmarking Simulations
	12.15 - 12.30	Chandany Sen, Buyer Aware? TOPCon's Reliability Issues in Comparison with PERC PV modules after Damp Heat Testing	Lauren Ashby, Impact of 2023 Tariff Changes on Outcomes for Households with and without Solar and Battery Storage		Louise Patterson, Adapting Reference Periods for Building Simulation Climate Data in a Changing Climate
12.30 – 1.30	Poster Session, Location Building 80 Level 3				
	Lunch, Building 80 Level 4				

7th Dec Thurs Day 3	12.30 – 1.30	Poster Session, Location Building 80 Level 3		
		Lunch, Buidling 80 Level 4		
	1.30 – 3.00	DAY 3 Plenary Session (2), Location: Level 2 - Room 7 Session chair: Ken Guthrie		
	1.30pm	Prof. Vasilis Fthenakis, Columbia University - "Photovoltaics Sustainability: Past, Present and Future"		
	2.00pm	A/Prof. Tim Anderson, Director and Professor of Engineering at Charles Sturt University - "Solar thermal energy systems and the built environment: Opportunities, challenges and the role of engineering design"		
	2.30pm	Wil Gardner, CSIRO Energy, Team Leader – Solar Thermal Engineering, Solar Technologies - "Solar Thermal Research and Commercial Deployment Pathways"		
	3.00 – 3.30	Afternoon Tea, Buidling 80 Level 4		
	3.30 – 5.00	CONCURRENT SESSIONS		
		Perovskite and friends Location: Lvl 2 - Room 007 Session chair: Brendan Wright & Hieu Nguyen	Community batteries and community microgrid Location: Lvl 3 Room 005 Session chair: Lasantha Meegahapola	Solar Heating and Cooling Location: Lvl 3 - Room 006 Session chair: Kristine McNabb
	3.30 – 3.45	Gabkyung Seo , A highly efficient perovskite solar cells via improved carrier management	Timothy Shue , Community batteries: Challenges and opportunities for community involvement in the Energy transition	Robert Taylor , IEA SHC Task 69: Solar Water Heating for 2030
	3.45 – 4.00	Jianpeng Yi , CO2 laser-assisted ultrafast crystallization for highly efficient perovskite solar cells	Sophie Adams , The role of community engagement in planning resilient microgrids	Sparkle Prentice , Investigating the impact of electric water heater load control on low voltage distribution networks
4.00 – 4.15	Md Arafat Mahmud , Halogenated Polycyclic Aromatic Hydrocarbon Treatment for Perovskite-OPV Tandem with Record FF	Patricia Wang-Zhao , Flexible operation of a neighbourhood battery to align with community priorities.	David Saldivia , Domestic hot water systems as energy storage for excess PV. A thermal model and performance analysis	
4.15 – 4.30	Mengdi Liu , Electroplated Copper Metal Contact for GaAs Solar Cells	Antonella De Corato , Co-optimization of Behind-the-Meter and Front-of-Meter Value Streams in Community Batteries	Zheng Wang , Transitioning from natural gas towards all electric solutions	
4.30 – 4.45	Muhammad Hasnan Sazzad , Power extraction from a thermoradiative operation and its possible applications	Panel Discussion	Lu Aye , Third Update on Activity C1 Design Tools and Models, Task 65 Solar Cooling Sunbelt Regions	
4:45 - 5.30	Closing Ceremony/Award Presentations Location: Level 2 - Room 7			
5.30 - 7.00	Networking Drinks Location: Level 4			