

2022 Asia-Pacific Solar Research Conference

29th, 30th November & 1st December

29-Nov

7.45am	Registration opens
8.30 - 8.40	Opening Ceremony Location: Concert Hall
8.40 - 8.50	Welcome from 2022 APSRC Conference Chairs Location: Concert Hall Wes Stein, CSIRO Chief Technologist & Prof. Gregory Wilson, Senior Principal Research Scientist CSIRO Energy Centre
8.50 - 9.00	International Energy Agency (IEA) Address Location: Concert Hall Daniel Mugnier - Chair, IEA PVPS Executive Committee & Tomas Olejniczak - Chair, IEA SHC Executive Committee

9.00 – 10.30	DAY 1 Plenary Session (1) Location: Concert Hall Chair - Dr Chris Fell, APVI Chair			
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9.00am	Scientia Prof. Martin Green, UNSW & ACAP Director – Opening Address - "Recent Developments in Photovoltaics"			
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9.30am	Dan Sturrock, Director Business Development & Transactions, ARENA - "ARENA's Ultra Low-Cost Solar mission"			
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10.00am	Dr. Nicole Kuepper-Russell, Deputy CEO, 5B - "The solar revolution - rapid solar at scale"			
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10.30 - 11.00	Morning Tea Location: Cummings Room			
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11.00 – 12.30	PV Silicon - Defects Chair: Yan Zhu & Edris Khorani Location: Concert Hall	REDI Hydrogen, Storage and Transmission Chair: Steve Blume Location: Mulubinba Room	CST Industry/Demonstration Chair: Mike Collins Location: Hunter Room	SPECIAL SESSION 11:00 - 12:30
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11.00 - 11.15	Zhongshu Yang "Impurity gettering by polysilicon/oxide passivating contacts"	Peter Eilersdorfer "Could Multi-effect Distillation be the Key to Unlock Large-scale Solar Driven Green Hydrogen Production?"	Invited Presentation - "An industry / market perspective on CSP, both domestically and overseas" Craig Wood (CEO), Vast Solar	Planning for Integration of Distributed Energy Resources - Ausgrid's Journey
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11.15 - 11.30	Muhammad Umair Khan "Accelerated solar cell level potential-induced degradation and its impact on solar cell performance"	Declan Heim "An Emissions Consideration for Flexible Green Hydrogen Loads in the NEM"	Ausgrid will discuss the current state of their research and development work toward integrating DER with particular regard to customer level forecasting, predicting network impact at different times of day with varying DER uptake rates and use profiles, network limitations at minimum load vs peak demand, use of integrated (multi-voltage wide-area) network modelling, the effect of phase unbalance on hosting capacity, the impact of incomplete data sources, and dealing with huge (TB+) datasets.
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11.30 - 11.45	Chandany Sen "The role of Na+ contamination in humidity-induced degradation in silicon HJT cells"	Louise Bardwell "Are Australia's large energy storage assets supporting the transition to a low carbon grid?"	Wil Gardner "CSIRO high temperature solar thermal sodium test loop"
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11.45 - 12.00	Zhenyu Sun "Hydrogen passivation of low temperature deposited amorphous silicon layers on SiGe solar cells grown"	Anna Nadolny "A bluefield atlas for lower cost pumped hydro energy storage"	Yanting Yin "Dissimilar Weld Failure: A Forensic Analysis to Determine Primary Failure Mechanisms"
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12.00 - 12.15	Md. Anower Hossain "Interstitial hydrogen in crystalline silicon: A hybrid DFT investigation"	Ashleigh Nicholls "Opportunities for flexible resources to improve transmission utilisation in NSW REZs"	Tim Anderson "The effect of fluidizing gas velocity on a fluidized bed solar receiver"
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12.15 - 12.30		Iain MacGill "The Social Carbon Costs and Benefits of the 2022 ISP Actionable Transmission Projects"	
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12.30 - 1.30	Lunch Location: Cummings Room			
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1.30 – 2.30	Day 1 Plenary Session (2) Location: Concert Hall Chair - Prof. Anita Ho-Baillie, John Hooke Chair of NanoScience/ARC Future Fellow, Sydney University			
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1.30 - 2.00	Dominic Zaal, ASTRI Director, CSIRO Energy - "The role of Concentrated Solar Thermal (CST) within integrated energy systems"			
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2.00 - 2.30	Wes Stein, Chief Technologist, CSIRO Energy - "Emerging Trends in CSP Technology"			
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2.30 - 3.00	Prof. Stefaan De Wolf, Material Science & Engineering, Interim Associate Director, KAUST Solar Center, Saudi Arabia - "Pathways to Efficient and stable perovskite/silicon tandem solar cells"			
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3.00 - 3.30	Afternoon Tea Location: Cummings Room			
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3.30 – 5.00	PV Perovskite - I Chair: Arman Mahboubi Location: Concert Hall	REDI Optimisation Chair: Mike Roberts Location: Mulubinba Room	CST Simulation/Modelling Chair: Andrew Beath Location: Hunter Room	
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3.30 - 3.45	Kilian Lohmann "New methods for the vapor deposition of metal halide perovskite solar cells"	Thorsten Trupke "PV system inspection via outdoor luminescence imaging and update on IEA PVPS Task 13"	Daniel Potter "The Heliosm software family: modelling, design, and control tools for CST systems"
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3.45 - 4.00	Faiazule Haque "Large bandgap perovskite solar cells for the application as top cell for Si-PVK tandem devices"	Laura Johnson "Impact of input error on PV system simulation under partial shading conditions"	Yingfei Huang "What factors are most important in determining payback period on CSP+D: A sensitivity analysis"
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4.00 - 4:15	Juan Benitez Rodriguez "Slot-Die Coating of a Formamidinium-Cesium Mixed-Cation Perovskite for Roll-to-Roll Fabrication"	Jaysson Guerrero "Performance Metrics for Distributed Energy Resources Export Services"	Yingfei Huang "Can CSP+D Solve Rising Energy and Water Prices? An Australian Site Feasibility Study"
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4:15 - 4:30	Jueming Bing "Total equivalent energy efficiency metric for BIPV and spectrum shifting windows"	Ellie Kallmier "Impact of tariffs and system costs on optimal PV system size"	Philine Gunawan "Hybrid PV-CSP for heat and hydrogen production : Study case iron-making industry"
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4.30 - 4.45	Viqar Ahmad "Investigating reverse bias recovery behaviour of perovskite solar cells"	Zahra Rahimpour "Generating synthetic residential electricity load profiles using household characteristics"	David Saldivia "Techno-economic assessment of the storage value of a Beam-Down Receiver CSP plant in Australia"
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4.45 - 5.00	Jianghui Zheng "Efficient Monolithic Perovskite/Perovskite/Si Triple-Junction Tandem Solar Cells"	David Gomez de Segura "Grid-Forming Inverters: The Up-to-date Solution from Ingeteam"	Woei Saw "Integration of CST into the Bayer process"
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5.00 - 5.30	APVI AGM Location: Banquet Room			
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5.30 - 6.30	Networking Drinks Location: Hunter Room			
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TUES

30-Nov	8.00am	Registration opens			
WED	9.00 – 10.30	DAY 2 Plenary Session (1) Location: Concert Hall Chair - Dietmar Tourbier			
	9.00am	Hank Price, Managing Director, Solar Dynamics, LLC Colorado, USA - "Concentrating Solar Power Best Practices - Findings and Updates"			
	9.30am	Joshua S. Stein, Sandia National Laboratory, USA - "Technical Barriers to the Commercialization of Perovskite Photovoltaics: How do we overcome them?"			
	10.00am	Prof. Paul Dastoor, Director, Centre for Organic Electronics, University of Newcastle - "Printed Solar: Green Energy for Industrial, Warehouse and Commercial (IWC) Buildings"			
	10.30 – 11.00	Morning Tea Location: Cummings Room			
	11.00 – 12.30	Poster Session Rear of Concert Hall			
	12.30 – 1.30	Lunch			
	1.30 – 3.00	Day 2 Plenary Session (2) Location: Concert Hall Chair - Daniel Roberts			
	1.30 – 2.00	Dr. Christoph Brunner, CEO of AEE INTEC, Austria - "The role of solar energy for a sustainable hydrogen production"			
	2.00 – 2.30	Christine Lins, Executive Director, GWNET – Global Women's Network for the Energy Transition - "Energising women to advance the energy transition"			
	2.30 – 3.00	Prof. Graham 'Gus' Nathan, Research Director, HILTCRC - "Opportunities for a growing role of solar energy in the decarbonisation of high temperature industrial processes"			
	3.00 – 3.30	Afternoon Tea Location: Cummings Room			
	3.30 – 5.00	PV Characterisation Chair: Anyao Liu Location: Concert Hall	REDI - SPECIAL SESSION PV end-of-life and sustainability Chair: Rong Deng Location: Mulubinba Room	CST - Particles Chair: Wil Gardner Location: Hunter Room	SBSHC Hot water (PV & thermal) and solar resources Chair: Jenniy Gregory Location: Banquet Room
	3.30 – 3.45	Pei-Chieh Hsiao "Cell-to-Module Analysis of Copper-Plated Silicon Heterojunction Modules with 23.17% Efficiency"	Marina Monteiro Lunardi "Sustainability at 5B and the circularity of the 5B MAVERICK"	Jin-Soo Kim "ASTRI Particle receiver technology: on-sun operation and initial test results"	Invited Speaker Robert Taylor "IEA SHC Task 69: Smart Solar Water Heating for 2030"
	3.45 – 4.00	Gaia Maria Javier "Evaluation of variations in solar cell production lines using time-series electroluminescence images"	Verity Tan "Solar panel waste projection in Australia, 2022-2035"	Yenchean Soo Too "Particle-based thermal energy storage systems for CSP and renewable heat applications"	
	4.00 – 4:15	Grace Liu "A deep learning approach to denoise electroluminescence images of solar cells"	Nick Florin "Product stewardship: current activity for PV systems in Australia"	Mike Collins "Development of a secondary reflector for the CSIRO Beam Down Receiver Test Platform"	William Ertler "Shifting domestic electric water heating to solar hours reduces battery capacity requirements by 80%"
	4:15 – 4.30	Alaa Al-Ahmad "Optimising large area solar simulation"	James Petesic "PV Industries - Circular Solar Grant: Collection and Processing Update"		David Mould "Net Zero Energy at Wylie's Baths"
4.30 – 4.45	Sijin Wang "Extracting the parameters of two-energy-level defects in silicon wafers using machine learning model"	Steve Bath "An ESG approach to end-of-life PV panel recycling"		Dario Tarquini (or Trevor Lee) "Quality Assurance of Available Meteorological Data"	
4.45 – 5.00	Glenn Broadhurst "Low-cost solar irradiance measurement by software-based sun tracking: Pyrheliometer need not apply"	Iain MacGill "Update on PV in the 100% Renewable Energy System (IEA PVPS Task 14)"		Trevor Lee "Improving Australian Weather and Climate Data Services"	
5.30 – 6.30	Pre-Dinner Drinks Location: Hunter Room				
6.30 -8.30	Conference Dinner Location: Concert Hall				

1-Dec	Thurs	8.00am	Registration opens			
		9.00 – 10.30	DAY 3 Plenary Session #1 Location: Concert Hall Session Chair: Li Wang			
		9.00am	Prof. Alison Lennon, Chief Scientist, Sundrive Solar Pty Ltd – <i>"The Ascent of Silicon Heterojunction Technology, but can it be Sustainably Manufactured at TW Annual Production Levels?"</i>			
		9.30am	Christoph Falter, Head of Strategy, Synhelion SA, Switzerland – "Flying With Sunlight"			
		10.00am	Michelle Blakeley, Founder "My Home", Perth WA – "An Initiative to deliver high performance housing for people who are homeless or at risk of becoming homeless"			
		10.30 – 11.00	Morning Tea Location: Cummings Room			
		11.00 – 12.00	PV Silicon - Passivating Contacts Chairs: Shuai Nie Location: Concert Hall	REDI Community batteries, Ground Albedo & EVs Chair: Mamie Shaw Location: Mulubinba Room	CST Novel Concepts Chair: Daniel Potter Location: Hunter Room	SBSHC Solar buildings Chair: Michelle Blakeley Location: Banquet Room
		11.00 - 11.15	Daniel Macdonald "Towards industrial poly-silicon contacted solar cells with efficiencies above 26%"	Shan Dora He "Neighbourhood batteries and virtual power plants increase local solar PV consumption compared to household batteries"	Kurt Drewes (CTO), Vast Solar "High temperature salt tank bucking failure"	Invited Presentation "IEA SHC TASK 66 Solar Energy Buildings: Objectives and Working Progress" A/Prof. Rebecca Yang, RMIT
		11.15 - 11.30	Thien Truong "Ex-situ phosphorus-doped poly-Si passivating contacts for high efficiency solar cells by PVD"	Laura Johnson "Centralised battery operation for community owned embedded networks"	Milad M. Zadeh "A parabolic trough photovoltaic thermal concentrating collector using triangular receiver"	
		11.30 - 11.45	Xinyuan Wu "Industrial Batch-type Tube ALD Reactor Enables TiO2 and Al-doped TiO2 Deposition on Large-scale Solar"	Phoebe Dennis "Modelled financial outcomes for community-scale batteries"	David Bisset "Optimization of PWF collectors and comparison to central receiver CST using SAM"	Huey (Jean) Tan "Extreme Climate Data Files for Design Resilience"
		11.45 - 12.00	Gabriel Bartholazzi "Evaporated Cu2O as a hole-selective contact for c-Si solar cells"	Marco Ernst "Impact of ground albedo surrounding large photovoltaic systems on bifacial illumination by Monte Carlo ray tracing"	Jon Perry "Thermodynamic Analysis of a Novel Two-Step High Temperature Thermo-Electrochemical Water Splitting"	Lu Aye "Second Update on Activity C2 Design Tools and Models, Task 65 Solar Cooling Sunbelt Regions"
		12.00 - 12.15	Di Yan "Poly-Si passivating contacts prepared via phosphorus spin-on-doping: a comparison between different"	Liping Wang "A review of services and value provided by EV managed charging"		Shayan Naderi "Solar pre-cooling with different tariff structures and household time of use patterns"
		12.15 - 12.30	Mohamed Ismael "21.9% efficiency achieved by c-Si solar cells with AlTiOx/TiOx electron-selective contact stack"	Edoardo Santagata "Decarbonising land transport in Micronesia: a case for electric vehicles"		Rebecca Yang "Local Manufacturing of Prefabricated Active Solar Building Envelope in Australia"
		12.30 – 1.30	Poster Session and Lunch Combined Rear of Concert Hall			
			Lunch Location: Cummings Room			
		1.30 – 3.00	PV Mix of Goods Chair: Ning Song Location: Concert Hall	REDI End of life and manufacturing Chair: Hengky Salim Location: Mulubinba Room	PHC Chemistry & Process Heat Chair: Location: Hunter Room	ACAP #1 Chair: Richard Corkish Location: Banquet Room
		1.30 - 1.45	Linda Koschier "Australian PV Market Trends"	Rong Deng "IEA PVPS Task 12 PV Sustainability: Working progress and Australian Contributions 2021-2022"	Hongjun Chen "Solar Driven Production of Hydrogen and Valuable Polymers"	Jessica Yajie Jiang (UNSW) "Super-efficient coloured photovoltaics: enabling sustainable building and vehicle applications"
		1.45 - 2.00	Jonas Bjuggren "A step in investigating commercial viability of high performing OPV materials on a cost/kWh basis"	Chris Fell "Second Life Solar: Re-imagining value from used solar PV modules"	Geoff Drewer "Industrial process heat through competitive renewable electricity via thermal energy storage"	Jiali Wang (ANU) "Inkjet printing for polycrystalline silicon passivating contacts"
		2.00 - 2:15	Olivia Bowen "Characterising the composition of photovoltaic panels for recycling in Australia"	David Leyton "Resolving the 'Anfangener' problem using The Solar Reverse Logistics Model (SRLM)"	Alfonso Chinnici "Solar thermal technologies to manage mining waste streams and carbon capture"	Adam Surmiak (Monash) "The end of traditional manual research, a new era of robotics for rapid energy materials discovery"
		2:15 - 2.30	Tristan Hadley "Quasi-Bessel Beams for parallel beams in Laser Power Transfer"	Brendan Wright "Machine learning-powered module end-of-life decisions from luminescence images"	Mikel Duke "Solar Energy in Industrial Water and Wastewater Management (Task 62): Status of Draft Technology Adoption Guidelines"	Hui Li (UQ) "Fluorinated additives for perovskite solar cells"
		2.30 - 2.45	Fiacre Rougieux "Battle of the dopants: Challenges and opportunities for n-TOPCon vs Ga-PERC technologies"	Mohammad Dehghanimadvar "A Policy Framework for Promoting Local PV Manufacturing in Australia"		Saghar Masoomi-Godarzi (Uni Melb) "Breaking the efficiency limit of perovskite solar cells using singlet fission material"
2.45 - 3.00	Yiyu Zeng "Durability study of commercial antireflection coatings"	Mohammad Dehghanimadvar "Social and Environmental Impacts of Australian PV Module Production: A Multi-objective Optimization"		Jueng-Eun Kim (CSIRO) "Flexible, Light Weight and Highly Efficient Perovskite Solar Modules Manufacturing via High Throughput Roll-to-Roll Process for Space Photovoltaics"		
3.00 - 3.30	Afternoon Tea Location: Cummings Room					
3.30 – 5.00	PV Perovskite - II Chair: Jueming Bing Location: Concert Hall	REDI A mixed bag Chair: Anna Bruce Location: Mulubinba Room		ACAP #2 Chair: Richard Corkish Location: Banquet Room		
3.30 - 3.45	Md Arafat Mahmud "Cation-Diffusion-Based Passivation for High Bandgap Perovskite and Pero-Pero Tandem with Record FF"	Samrudh Anavatti "Forecasting Australia's electricity grid emissions to 2030"		The Duong (ANU) "Bulk Incorporation with 4-methylphenethylammonium chloride for Efficient and Stable Perovskite Cells"		
3.45 - 4.00	Andre Cook "Effect of Lewis Acid, Lewis Base and TOPO Passivation in MAPbI3 and Mixed Perovskites"	Rebecca Yang "IEA PVPS TASK 15 Enabling Framework for the Development of BIPV: Working Progress and Australian Contributions"		Calvin Lee (Uni Melb) "Radical character modification through steric perturbations: a twisted route towards silicon-match"		
4.00 - 4:15	Shi Tang "Doping of hole transport materials on the stability and recoverability of on very thin substrate PSC"	Chris Martell "Task 18 Recent Activities Abstract"		Wenxin Mao (Monash) "Light Induced reversal of ion segregation in mixed-halide perovskite"		
4:15 - 4.30		Shayan Naderi "A database and online tool for decarbonization in the Pacific Island Countries and Territories"		Neil Mallo (UQ) "Tuning the high frequency dielectric constant of organic semiconductors for organic photovoltaics"		
4.30 - 4.45		Shukla Poddar "Future Solar Resource Variability and Intermittency across Australia"		Jianjun Li (UNSW) "Microscopic carrier loss mechanisms in 12% efficient CZTSe thin-film solar cells"		
4.45 - 5.00		Abi Prakash "Ahead-of-time NEM information produced by the Australian Energy Market Operator: an open-source tool and case studies"		Doojin Vak (CSIRO) "Reliable fabrication and testing of roll-to-roll printed PV for digital revolution in PV research"		
5.00 - 5.30	Closing Ceremony/Award Presentations Location: Concert Hall					
5.30 - 7.00	Networking Drinks Location: Hunter Room					