

2017 Asia-Pacific Solar Research Conference

5th DECEMBER - 7th DECEMBER
Bayview Eden Melbourne

8:00 – 9:00							
Registration							
9:00 – 10:30							
DAY 1 Plenary Session Session Chair: Dr. Jacek Jasieniak Room TBA							
9:00 – 9:30 Mr Simon Corbell, Victorian Renewable Energy Advocate, Vic. State Government							
9:30 – 10:00 Dr. Cliff Ho, Acting Manager, R&D S&E, Sandia National Laboratories, USA							
10:00 – 10:30 Mr Werner Weiss, Director, AEE - Institute for Sustainable Technologies, AUSTRIA							
10:30 – 11:00							
Morning tea							
11:00 – 12:50		Solar Heating & Cooling Chair: TBA Room TBA		Concentrated Solar Thermal Power: Heliostats & Optics Chair: Dr. John Pye Room TBA		PV Devices - Perovskite SCs Chair: Prof. Jiang Tang Room TBA	
11:00 – 11:20		Korbinian Kramer (Invited)	EN ISO 9806:2017 - A Focus on Solar Air Heating Collectors	Michael Geyer (Invited)	State of the art in Concentrating Solar Thermal Power	Qingbo Meng (Invited)	Stability investigation on perovskite solar cells: from materials to the device
11:20 – 11:40		Wim Van Helden (Invited)	TBA	Gus Nathan (Invited)	Opportunities for concentrating solar thermal and combustion hybrids within the future energy mix	TBA	
11:40 – 11:55		Stuart Hands	A Case Study of Residential Forced Ventilation Systems Combined with Solar Air Collectors	David Bisset	Images Formed by a Piecewise-Focusing Solar Collector	Timothy W. Jones	A metallurgical route for large-scale perovskite solar cell fabrication
11:55 – 12:10		Jeremy Osborne	Opportunities for solar heat for industrial processes	Jeremy Yu	An Experimental Investigation of Wind Loads on Operating Heliostats in Tandem	Naveen Kumar Elumalai	Low Temperature Processed Electron Transport Layer for High Performance Perovskite Solar Cells
12:10 – 12:25		Stefan Abrecht	SOLERGY Label - Easy Understanding of Collector Performance	Timothy Anderson	A numerical investigation of the influence of wind on multiple short natural draft dry cooling towers	Jianghui Zheng	Solution-processed, silver-doped NiOx as hole transporting layer for high efficiency inverted perovskite solar cells
12:25 – 12:40		Ahmad Mojiri	Development of a stationary concentrating solar thermal collector for industrial process heat	Azadeh Jafari	A Discussion about the Stow Wind Speed for Heliostats	Mathias Uller Rothmann	Electron microscope characterisation of photoactive perovskites
12:40 – 12:55		Sheikh Khaleduzzaman Shah	Seasonal Solar Energy Storage for Space Heating in Cold Climate	Farzin Ghanadi	An Experimental Investigation of Reynolds Number, Wind Direction and Pitch Angle Effects on Mixed Convective Heat Losses from a Flat Plate Receiver	Xu Liu	Efficient Low-Temperature Solution-processed Planar Perovskite Solar Cells with High Fill Factor;
12:50 – 2:00							
Lunch							
2:00 – 3:30		IEA PVPS and Solar Heating & Cooling Chair: TBA Room TBA		PV Devices - Perovskite Cells Chair: Dr. Garry Rumbles Room TBA		PV Devices - Tandem Cells Chair: Dr. Dr Xiaojing Hao Room TBA	
2:00 – 2:15		Renate Egan	The IEA PVPS Programme	Hong Zhang	Toward All Room-Temperature, Solution-Processed, High-Performance Planar Perovskite Solar Cells: A New Scheme of Pyridine-Promoted Perovskite Formation	Xinbo Yang	Tantalum Nitride Electron-Selective Passivating Contact for Silicon Solar Cells Perovskite-Perovskite Tandem Efficiency Potential and Selective Light
2:15 – 2:30		Ken Guthrie	The IEA SHC Programme	Xiaofan Deng	Dynamic study of light soaking effect on perovskite solar cells by photoluminescence microscopy	Yajie Jiang	Design of Bragg Reflectors in III-V Solar Cells for Spectrum Splitting to Si
2:30 – 2:45		Leslie Dowling	Mission Innovation Challenge	Tian Zhang	Perovskite Solar Cell by Conversion of Thermal Evaporated PbX2 on Low Temperature Tin Oxide Electron Transfer Layer Substrate	Ziheng Liu	Epitaxial Growth of Ge on Si at Low Temperatures for III-V Tandem Solar Cells
2:45 – 3:00		TBC	Proposed Task PV for Transport	Ahmer A.B. Baloch	Multi-Property and Multi-Scale Computational Material Optimization of Perovskite Solar Cell	Niraj N Lal	Perovskite-Perovskite Tandem Efficiency Potential and Selective Light Trapping Mechanisms Based on Morpho Butterfly Nanostructures
3:00 – 3:15		Renate Egan and Ken Guthrie	PVPS and SHC - the next 5 years. Tasks and Opportunities	Lei Shi	Encapsulation and Accelerated Lifetime Testing of Organic-Inorganic Perovskite Solar Cells	Yiliang Wu	Monolithic perovskite/silicon-homojunction tandem solar cell with over 20% efficiency
3:15 – 3:30		Q&A session		Bin Li	Microstructural control of two-step deposited perovskites for planar heterojunction solar cells	TBA	
3:30 – 4:00							
Afternoon tea							
4:00 – 5:20		IEA PVPS and Solar Heating & Cooling Chair: TBA Room TBA		PV Devices Chair: TBA Room TBA		PV Devices - Si SCs Chair: Dr. Udo Römer Room TBA	
4:00 – 4:20		Warwick Johnston	PVPS Task 1: Strategic PV Analysis & Outreach	Garry Rumbles (Invited)	Development of Highly Efficient Perovskite Solar Cells with Roll-to-Roll Compatible Process	Brett Hallam (Invited)	Hydrogenated Heterojunction p-type Silicon Solar Cells
4:20 – 2:35		Korbinian Kramer	Proposed PVT Collaborative Task	James M Cave	Determining the Activation Energy for Hysteresis in Perovskite Solar Cells;	Rabin Basnet	Relationship between local oxygen precipitation and minority carrier lifetime in Czochralski Si
4:35 – 4:50		Mikel Duke	SHC Task :Solar Energy in Industrial Water Management	Kenrick F. Anderson	Novel all-in-one Electroluminescence, photoluminescence and light-beam induced photocurrent spatial uniformity measurements within perovskite solar cells	Pei-Chieh Hsiao	Evaluation of Industrial Viability and Reliability of Plated Metallisation for Higher Efficiency p-type and n-type Silicon Solar Cells
4:50 – 5:05		Jan Erik Nielsen	SHC Task 57: Global Certification Network	Jingsong Sun	Inverted perovskite solar cells with high fill-factors featuring mesoporous NiO HTLs	Ning Song	Reduction of Rear Optical Losses for Interdigitated Back Contacts Silicon Solar Cells
5:05 – 5:20		Q&A session		Suguru Tanaka	Perovskite layers formed with Fluorocarbon polymer-scaffold and the high cell efficiency	HuiTing Wu	Reconstructing Photoluminescence Spectra at 79K from Heavily Boron Doped Regions of Crystalline Silicon Solar Cells
5:20 – 7:30							
Conference Reception							
CONFERENCE POSTER SESSION							

TUESDAY 5th

8:00 – 9:00		Registration Desk							
9:00 – 10:30		DAY 2 Plenary Session Session Chair: A/Prof. Renate Egan, Chair APVI Room TBA							
9:00 – 9:30		Prof. Martin Green, Director, Australian Centre for Advanced Photovoltaics (ACAP), UNSW							
9:30 – 10:00		Dr. Wes Stein, Director, Australian Solar Thermal Research Initiative (ASTRI) & CSIRO							
10:00 – 10:30		Ms Kirsty Gowans, General Manager Project Delivery, Australian Renewable Energy Agency (ARENA)							
10:30 – 11:00		Morning tea							
Wednesday 6th	11:00 – 12:50	PV D&I - Performance & Solar Resource Chair: TBA Room TBA		Concentrating Solar Thermal - Receivers Prof. Maziar Arjomandi Room TBA Chair:		PV Devices - Metal Chalcogenide Chair: Prof. Qingbo Meng Room TBA		PUSCH - Promoting the Use of Solar Cooling and Heating in Australian Buildings Workshop Part 1 Chair: TBA Room TBA <i>"Price Reduction of Solar Thermal Systems"</i> Dr Korbinian Kramer, Fraunhofer Institute of Solar Energy Q&A Session	
	11:00 – 11:20	Ulrike Jahn (Invited)	Managing Technical Risks in PV Investments – New Methods How to Quantify Risks in PV Projects	Prof Jacob Karmi, Weismann Institute (Invited)	TBA	Jiang Tang (Invited)	SnSe3 thin film photovoltaics: motivation, progress and perspective		
	11:20 – 11:40	Maria Wall (Invited)	Solar Energy in Urban Planning – Results from the IEA SHC Task S1	Will Logie	Fatigue Analysis of Sodium Receiver Tubes	Xiaojing Hao (Invited)	Promise, progress and challenges of earth-abundant and environmentally friendly CZTS solar cells		
	11:40 – 11:55	Jan Remund	Solar resource for high penetration and large scale applications – a new joint Task of IEA PVPS and IEA SolarPACES	Shen Long	Effect of Jet Azimuthal Angle on the Flow Field within a Hybrid Solar Receiver Combustor	Zhulong Zhang	Cesium Lead Halide Perovskite Nanocrystals as the Passivating Source of Lead Chalcogenide Quantum Dots and Solar Cells		
	11:55 – 12:10	Timothy Anderson	Solar Potential Assessment of Facades in an Urban Context: An Algorithm for 2.5D Digital Surface Models	Dominic Davis	Particle Residence Time Distributions in a Solar Vortex Receiver	Yuanfang Zhang	High-quality CuSbS2 as potential abundant absorber for thin film solar cells		
	12:10 – 12:25	Nick Morley	Fleet Performance of Large-Scale PV in Australia	Charles-Alexis Asselineau	Influence of the Radiative Flux Distribution on Thermo-Elastic Stresses of Solar Thermal Receiver Tubes.	Shengli Zhang	TiO Films Prepared at Low Temperatures for the Application in Cu2ZnSnS4 Thin Film Solar Cells		
	12:25 – 12:40	Jessie Copper	Interannual Variability of the Solar Resource across Australia	Mehdi Jafarian	An innovative solar receiver for heating a pressurised gas	Xin Cui	Improvement of CZTS solar cell performance by ALD WOx interfacial layer		
	12:40 – 12:55	Ian Grant	Satellite-based solar resource data from the Australian Bureau of Meteorology: Status and plans	Ka Lok Lee	Experimental study on the effects of wind on the convective heat losses from a heated cavity	Arastoo Teymouri	Low temperature solution-based process for silver nanowire as potential replacement for indium tin oxide		
	12:50 – 2:00		Lunch						
	Wednesday 6th	2:00 – 3:30	PV D&I - Distributed & Technical Chair: TBA Room TBA		ARENA WORKSHOP Details forthcoming		PV Devices - Perovskite & Organic SCs Chair: A/Prof Hong Zhang Room TBA		PUSCH - Promoting the Use of Solar Cooling and Heating in Australian Buildings Workshop Part II Chair: TBA Room TBA <i>"Solar District Heating International Experience"</i> Jan Erik Nielsen, SolarKey Int., Denmark Q&A Session
2:00 – 2:15		Nicholas Engerer	Distributed PV Statistics for Australian Capital Cities: Orientation, Loss Factors and Shade Impacts	Eun Young Choi			Stability Enhancement of Organic-Inorganic Perovskite Solar Cells via Low Temperature Atomic Layer Deposition		
2:15 – 2:30		Naomi Stringer	Data driven exploration of voltage conditions in the Low Voltage network and the technical and commercial implications for distributed solar PV	Benjamin C. Duck			The Impact of Technique on Measured Efficiency Values for Perovskite Solar Cells		
2:30 – 2:45		Sharon Young	Scenario Modelling of the Impacts of Distributed Energy Resources on Australia's Electricity Networks	Fengling Zhang			Organic solar cells and applications		
2:45 – 3:00		Rui Tang	Impacts of Temporal Resolution and System Efficiency on PV Battery System Optimisation	Ahmer A.B. Baloch			The Practical Limits of Perovskite Solar Cell Efficiency by Device Simulation		
3:00 – 3:15		Peter Zeller	Series DC Arcing Phenomena in Photovoltaic Systems	Ashraf Uddin			Novel Donor and Acceptor Systems for High Performance Organic Solar Cells		
3:15 – 3:30		Jason David	Impact of Scheduled Cleaning on Photovoltaic System Efficiency in an Australian Coastal Context	Andre Cook			Towards rational design of Lewis base passivation agents for Perovskite Solar Cells		
3:30 – 4:00		Afternoon tea							
Wednesday 6th	4:00 – 5:20	Solar energy solutions for emerging economies Chair: TBA Room TBA		Solar Fuels Chair: Prof. Wojciech Lipinski Room TBA		PV Devices - Si Chair: Dr. Brett Hallam Room TBA		Low Carbon Living Chair: TBA Room TBA	
	4:00 – 4:20	Atul Raturi (Invited)	Role of Solar Energy in Achieving Sustainable Development Goals in Pacific Island Countries	Tatsuya Kodama (Invited)	High-Temperature Thermochemical Hydrogen Production using a Solar Concentrating System	Udo Römer (Invited)	Reliable Copper Plating to TCO Layers for the Metallisation of High Efficiency Solar Cells	Living Solar	Birgit Abrecht
	4:20 – 4:35	Geoff Stapleton (Invited)	Quality Renewable Energy Training Programs for Technicians	M. Sarafaz	Potential application of liquid antimony oxide for solar-aided hydrogen production	Benjamin Phua	Cross Sectional Analysis of Encapsulated Solar Cells	Affordable heating and cooling of buildings Innovation Hub: An Australian response to Mission Innovation	Stephen White
	4:35 – 4:50	Rolando Madriz-Vargas	A cross-case analysis of needs, barriers and opportunities from Community Energy projects in Central America	Vincent Wheeler	Multi-Scale Design for High Efficiency Thermochemical Fuel Production	Chang-Yeh Lee	Manipulating the fixed charge density of ALD Al2O3 deposited using a non-pyrophoric precursor	An investigation of PV HVAC, building envelope and thermal mass for low energy residential homes	Alistair Sproul
	4:50 – 5:05	Mengying Chen	Implementation of Solar Home Systems (SHS) in Vanuatu's Tanna Island	Alireza Rahbar	Technoeconomic analysis of algae-to-liquid fuel production based on concentrated solar supercritical water gasification	Marina M. Lunardi	Life Cycle Assessment of Advanced Silicon Solar Cells	Does a 10-star rated house perform as designed?	Sihong Gong
	5:05 – 5:20	Vinal Vishal Prakash	Energy Needs Assessment and Strategies for 100% RE Future For A Small Island Community	Anna Nadolny	Impact of conversion to EV within South Australia	Tian Zhang	In-situ X-ray Photoelectron Emission Analysis of Thermal stability of atomic layer deposited Wox as hole-selective contacts for Si solar cells	Improving the robustness of thermal models of naturally ventilated buildings	Timothy Anderson
5:30 – 6:30		Pre Dinner Drinks						APVI AGM	
6:30 – 9:30		Official Conference Dinner							

8:30 – 9:00	Registration Desk					
9:00 – 10:30	DAY 3 Plenary Session Session Chair: Dr. Richard Corkish Room TBA 9:00 – 9:30 Dr. Greg Wilson, Center Director, National Renewable Energy Laboratory, USA 9:30 – 10:00 Dr. Pierre Verlinden, Vice-President & Chief Scientist, Trina Solar 10:00 – 10:30 Dr. Jenny Riesz, Principal, Australian Energy Market Operator					
10:30 – 11:00	Morning tea					
11:00 – 12:50	PV Deployment & Integration - High Penetration Chair: TBA Room TBA	Concentrating Solar Thermal - Minerals Processing Chair: TBA Room TBA	ACAP Chair: TBA Room TBA			
11:00 – 11:20	Keith Lovegrove (Invited) Dispatchability options for a high renewables world	Geoff Brooks (Invited) The Development of Hybrid Solar Thermal Furnaces	Brett Hallam, UNSW	The Importance of Hydrogenation and Gettering for Silicon Solar Cell		
11:20 – 11:40	Andrew Blakers (Invited) 100% renewable electricity by 2030	Robbie McNaughton (Invited) Solar Steam Reforming for the Bayer Process, Embedding Solar Energy in Alumina	11.20 – 11.35 Mei Gao, CSIRO	Development of Highly Efficient Perovskite Solar Cells with Roll-to-Roll compatible Process		
11:40 – 11:55	Roger Dargaville (Invited) The role of solar PV and concentrating solar thermal in large scale integration optimisation studies	Ahmed Naufal Integration of concentrated solar thermal energy into gibbsite calcination process	11.35 – 11.50 Rhett Evans, UNSW	Manufacturing Statistics		
11:55 – 12:10	Iain MacGill Renewable energy auctions versus the RET- better renewables prices, but greater integration costs?	Andrew Beath Opportunities for Concentrated Solar Thermal Heat Input into the Australian Minerals Industry	11.50 – 12.05 Jian-Feng Lu, Monash	Diammonium and Monoammonium Mixed Organic-Cation Perovskites for High Performance Solar Cells with Improved Stability		
12:10 – 12:25	Bin Lu Modelling 60–120% Renewable Electricity in South Australia	Alicia Bayon Seasonal operating control strategy for a continuous hydrogen production in a 1 MWh plant based on ceria thermochemical cycle	12.05 – 12.20 Pheng Phang, ANU	24% efficient polysilicon passivated contact silicon solar cells		
12:25 – 12:40	Isha Deodhar Finding High Resilience And Near Optimal Energy Generation Mixes for 21st Century	Mahesh Venkaraman Production Pathways and Energy Analysis for Direct Solar Metallurgical and Electrolytic reduction of rare earth oxides	12.20 – 12.35 Jegadesan Subbiah, UMelb	TBA		
12:40 – 12:55	K Keeratimahat Short-term Operational Characteristic Analysis of Existing Utility-scale PV Plants in Australia	Saleh Almsater Cost Analysis of Two High Temperature Thermal Energy Storage Techniques for Large Scale Concentrating Solar Power (CSP) Applications	12.35 – 12.50 Hui Jin, UQ	Graphene anodes for thin film solar cells		
12:50 – 2:00	Lunch					
	ACAP Poster Session					
2:00 – 3:30	PV Deployment & Integration - Financial Aspects Chair: TBA Room TBA	Concentrating Solar Thermal Chair: Dr Alicia Bayon Sandoval Room TBA	ACAP Chair: TBA Room TBA			
2:00 – 2:15	Jeremy Lloyd FCAS Market Design for High Renewable Penetrations in the National Electricity Market	Yanping Sun New Na ₂ SO ₄ -NaCl-ceramic composites as high temperature phase change materials for solar power plants	14.00 – 14.15 Wei Li, Monash	Microstructure characterizations for photoactive perovskite materials		
2:15 – 2:30	James Banks Fast Frequency Response Markets in the Future Australian NEM with High Renewable Energy Penetration	Alberto de la Calle Optimal annual operation of the dry cooling system of a supercritical CO ₂ recompression Brayton cycle integrated with a concentrated solar energy plant	14.15 – 14.30 Sarah McGregor, UQ	Organic semiconductors for thin film photovoltaic devices		
2:30 – 2:45	Phillip Wild Determining commercially viable two-way and one-way 'Contract-For-Difference' strike prices and revenue receipts	Kimberley Kueh Planar Temperature Measurement of Radiatively-heated Particles	14.30 – 14.45 David Jones, UMelb	TBA		
2:45 – 3:00	Shira Samocha Generator Revenue in the Australian National Electricity Market with High Renewables Penetration	Mahyar Silakhori The potential of lead oxide for energy storage in a high temperature solar thermal system	14.45 – 15.00 Marina Monteiro Lunardi, UNSW	PV End of Life		
3:00 – 3:15	Luke Marshall Coincident Timing Barriers to Microgrid Energy Trading	Juan F. Torres Numerical Investigation of Mixed Convection from a Tilted Flat Solar Thermal Receiver	15.00 – 15.15 Doojin Vak, CSIRO	Hot Slot Die Coating for Organic and Perovskite Solar Cell		
3:15 – 3:30	Ben Madafiglio Facilitating Demand Response in the Australian National Electricity Market	Elham Alipourtarzanagh Experimental and Numerical Investigation of the Flow Characteristics through the Aperture of a Cavity Receiver	15.15 – 15.30 Klaus Weber, ANU	High efficiency, monolithic perovskite - silicon tandem cells		
3:30 – 4:00	Afternoon tea					
4:00 – 5:00	PV D&I - Solar in the Retail Market Chair: TBA Room TBA	Remote & Emerging Economies Chair: TBA Room TBA	ACAP Poster Session Pre-function Foyer			
4:00 – 4:15	Naomi Stringer & Luke Marshall Open Source Model for Operational and Commercial Assessment of Embedded Network Proposals in the Australian National Electricity Market	Bert Herteleer Understanding Integration Aspects: Renewable Power and Energy Fractions				
4:15 – 4:30	Baran Yildiz Impact of short term electricity load forecast on the measurement of PV self-consumption for households	Kitessa Roro Field Performance of a 558 kWp Ground Mounted Single-Axis PV System in Pretoria, South Africa				
4:30 – 4:45	Emma Presutti Retail Electricity Tariff Design to Incentivise Efficient Consumer Behaviour	Arionmaro Asi Simaremare Modelling of Future Least Cost High Renewable Energy Penetration Scenarios in the Java Bali Grid System				
4:45 – 5:00	Mike Roberts Apartment PV - Which Side of the Meter?	Yusak Tanoto Photovoltaic Deployment Experience and Technical and Commercial Potential in Indonesia's Java-Madura-Bali Grid				
5:00 – 5:15	Closing Ceremony/Award Presentations					
5:15 – 6:00	Drinks and Nibbles					

Thursday 7th