ASIA-PACIFIC
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Instructions to Abstract Authors

2018 Key Dates

Submission of Abstracts due:	**Monday, 16 July 2018**
Notification of abstract selection to authors:	**Monday, 13 August 2018**
Papers due for peer review:	**Monday, 15 October 2018**
Feedback from reviewers to authors:	**Monday, 12 November 2018**
Final paper submission due from authors:	**Monday, 26 November 2018**

Your contribution will not be formally accepted and scheduled, until you have registered your attendance at the conference.

Please indicate by ticking which stream/s best fits your abstract

	STREAMS Topics listed are a guideline only. Submissions in related areas are welcome
☐	**Photovoltaic Devices** *Silicon solar cells* *Inorganic, organic, dye sensitized and perovskites* *Tandem and other solar cells* *Characterisation and quality control* *Modules and manufacturing*
☐	**Deployment & Integration** *Renewables integration, policy and regulation* *Forecasting and Resource assessment* *Minigrids and Community owned Renewables* *Field experience, performance, yield and reliability* *Distributed Energy Resources, EVs and Low emissions transport*
☒	**Solar Heating and Cooling, Low Carbon Living** *Energy Efficiency and Demand Management* *Housing and appliances* *Solar heating and cooling including heat pumps* *Cities and Communities* *Competing with gas in the domestic & commercial market*
☐	**Concentrating Solar Thermal** *Fundamentals and components* *Storage, systems and power cycles* *CSP integration, design and modelling* *CSP and high temperature processing*
☐	**Solar Fuels & Chemistry** *Storage* *Hybrids, complementary solutions and discrete applications* *Fuels and chemicals from electricity and heat* *Energy for heavy industry*
☐	**Solar energy solutions for emerging economies** *Islands and remote regions* *Supergrid and interconnections between countries* *Field Experience, Performance and deployment*

Please tick which best describes you:

I am a student: Yes ☐ No ☒ Gender: Female ☐ Male ☒

I would like to be considered for an: Oral ☒ and/or Poster ☐ presentation

I intend to submit a paper for peer review: Yes ☐ No ☒

Save your abstract using this format: **STREAM_Surname_First Name_Initial_2018**

Submit the abstract by clicking this **LINK** then simply upload abstract to the DROP BOX folder

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PV/T research at UNSW

NB: Your title is to be no more than 95 characters (including spaces), as it will be used in the official printed program

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The price of Photovoltaics continues to decline rapidly due to mass production and technical advances. In addition, the price of grid electricity form fossil fuels and natural gas continues to rise. This creates increasing challenges and opportunities for new technologies to emerge. Low cost PV systems on buildings now mean that any energy efficiency measures or alternative renewable energy systems need to compete not only with grid electricity prices and natural gas but with PV systems which are often one third to one half the price of retail energy from fossil fuels.

This paper will explore two technologies under investigation at UNSW in hybrid PV/T energy systems. One system utilises low grade waste heat for driving a desiccant air conditioning dn eating system. Ina addition the system utilises ground coupled bore water cooling to improve the performance of the desiccant HVAC system (Guo et. al, 2017). A second technology will be examined that utilises PV/T waste heat for heating swimming pools. This approach utilises low speed, low energy pumping to deliver similar performance as a conventional solar pool heating system but with a reduction in pump energy of approximately 60 -80% (Zhao et. al, 2018). Our most recent results suggest such systems can provide similar thermal performance as a conventional solar pool heating system but that for a $300 additional investment life-cycle savings of approximately $2000 can be realised.

References

Guo, J., Lin, S., Bilbao, J.I., White, S.D. and Sproul, A.B., 2017, 'A review of photovoltaic thermal (PV/T) heat utilisation with low temperature desiccant cooling and dehumidification', *Renewable and Sustainable Energy Reviews*, 67, p1-14.

Zhao, J., Bilbao, J.I., Spooner, E.D. and Sproul, A.B., 2018, 'Experimental study of a solar pool heating system under lower flow and low pump speed conditions' *Renewable Energy*, 119, p320-335,