

Sydney *Radiative Cooling* Workshop 2025

Day 1: Thursday 2 October 2025

9:00 – 10:05 Keynote session

Chair: Boris Kuhlmeiy

09:00 *Boris Kuhlmeiy, Alex Song, Ned Ekins-Daukes, Michael Nielsen:* Welcome (00:05)

09:05 *Shanhui Fan:* Thermal radiation beyond thermal equilibrium (01:00)

10:05 – 10:30 Coffee break

10:30 – 12:40 Urban overheating & building performance

chair: Alex Song

10:30 *Mat Santamouris:* Urban Overheating – Developments- Impacts and Heat Mitigation Progress (00:40)

11:10 *Riccardo Paolini:* Towards All-year Performance of Radiative Cooling Materials (00:30)

11:40 *Xiaobo Yin:* Materials Solutions for a Cool and Sustainable City (00:30)

12:10 *Angus Gentle:* Radiative Cooling Before It Was Cool: Two Decades of Passive Thermal Control (00:30)

12:40 – 13:40 Lunch

13:40 – 15:10 Coatings for building envelopes

chair: Mat Santamouris

13:40 *Xiaolin (Shannon) Wang:* Thermochromic Coatings - Dynamic Radiative Cooling Strategies for Energy-Efficient Buildings (00:30)

14:10 *Pingan Song:* Fire-safe all-day passive radiative cooling coating for sustainable buildings (00:30)

14:40 *Baohua Jia:* Sustainable photothermal management (00:30)

15:10 – 15:40 Afternoon tea

15:40 – 17:40 Personal cooling & enabling photonics for PRC

chair: Judith Dawes

15:40 *Alex Song:* Passive cooling textiles (00:30)

16:10 *Daniel Glass:* Optimising Radiative Cooling Fibers (00:30)

16:40 *Yuerui (Larry) Lu*: Long-propagating ghost phonon polaritons enabled by selective mode excitation (00:30)

17:10 *Yuri Kivshar*: Shaping thermal radiation with chiral metasurfaces (00:30)

19:00 Workshop dinner (optional): Rubyo's

Day 2: Friday 3 October 2025

9:00 – 10:40: From urban materials to water and energy harvesting

chair: Martijn de Sterke

09:00 *Chiara Neto*: Passively Cooled Paint-Like Coatings for Atmospheric Water Capture (00:40)

09:40 *Hassan Khan*: Radiative Cooling with Coloured Materials: Comparable Summer Benefits to White Surfaces and Improved Winter Balance in the Built Environment (00:30)

10:10 *Sid Assawaworrarit*: Energy harvesting from radiative cooling (00:30)

10:40 – 11:10: Coffee break

11:10 – 12:40: Thermoradiative power & TPV systems

chair: Michael Nielsen

11:10 *Michael Fuhrer*: Graphene for efficient thermoradiative energy harvesting (00:30)

11:40 *Ned Ekins-Daukes*: Semiconductor thermoradiative power conversion (00:30)

12:10 *Xiawa (Eva) Wang*: Minimizing Radiative Cooling Load in Space Thermophotovoltaic Systems (00:30)

12:40 – 13:25 Lunch

13:25 – 15:00: Fundamentals & detection for thermal photonics

chair: Ned Ekins-Daukes

13:25 *Wei Li*: Directional thermal radiation (00:30)

13:55 *James Bullock*: Mid-wave infrared detection with bulk black phosphorus (00:30)

14:25 *Kenneth Crozier*: Mid-infrared metasurfaces for chemical detection (00:30)

15:00: Closing remarks