Nanomaterials and Nanodevices for Sustainable Environment (NNSE) 2023 workshop program (7th September)

Venue: Ground floor, SEB building (E8), UNSW

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11:50 Vangyang Liu CSIRO Lindfeld Sustainable seawater utilization: Enabling high efficiency chlorine electrosynthesis through single-atom catalysts.	11:20	Wei Kong Pang	UOW	
Lunch	11:35	Peggy Zhang	CSIRO Lindfield	Engineering Ferroelectric Heterostructures for Low-Energy Electronic Device Applications
Chair Jabbo Y	11:50	Yangyang Liu	CSIRO Lindfield	Sustainable seawater utilization: Enabling high efficiency chlorine electrosynthesis through single-atom catalysts.
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Integrated CO2 capture and electrolysis for syngas production	12:30 13:30 13:45	Jinqiang Zhang Bing Sun	UTS UTS	Lunch Chair: Jiabao Yi Refining structures of electrochemical catalysts for energy storage and conversion Electrode and Catalyst Design for Metal-air Batteries
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16:20 Sunyu Lu UNSW Sustainable manufacturing of hydrogen peroxide: where are we now?	12:30 13:30 13:45 14:00 14:15 14:30 15:00	Jinqiang Zhang Bing Sun Rui Tang Jiaquan Li Yong Zhao	UTS UTS USYD USYD USYD CSIRO Newcastle	Lunch Chair: Jiabao Yi Refining structures of electrochemical catalysts for energy storage and conversion Electrode and Catalyst Design for Metal-air Batteries Nanostructure-Interface engineering of halide perovskite catalysts toward solar-fuel generation Transition-metal single atom catalysts for valorization of biomass-derived chemicals. Integrated CO2 capture and electrolysis for syngas production Afternoon Tea /Lab Tour Chair: Yuling Wang
17:30 Session 3 - Biomaterials and Devices for Healthier Life (G07, SEB Building)	12:30 13:30 13:45 14:00 14:15 14:30 15:00	Jinqiang Zhang Bing Sun Rui Tang Jiaquan Li Yong Zhao	UTS UTS USYD USYD USYD CSIRO Newcastle UNSW	Lunch Chair: Jiabao Yi Refining structures of electrochemical catalysts for energy storage and conversion Electrode and Catalyst Design for Metal-air Batteries Nanostructure-Interface engineering of halide perovskite catalysts toward solar-fuel generation Transition-metal single atom catalysts for valorization of biomass-derived chemicals. Integrated CO2 capture and electrolysis for syngas production Afternoon Tea /Lab Tour Chair: Yuling Wang Using visible light to enhance thermal catalytic CO2 conversion From CO2 Electrolysis to Magnetic Carbon Formation
Dinner (Kingsford Peking Restaurant, 498 Anzac Parade Kingsford, NSW) Session 3 - Biomaterials and Devices for Healthier Life (G07, SIB Building) Chair: Kang Liang	13:30 13:45 14:00 14:15 14:30 15:00 15:20 15:35 15:50	Jinqiang Zhang Bing Sun Rui Tang Jiaquan Li Yong Zhao Emma Lovell Simin Moradmand Zhengbiao Peng	UTS UTS USYD USYD USYD USYD USYD USYD USYD USY	Lunch Chair: Jiabao Yi Refining structures of electrochemical catalysts for energy storage and conversion Electrode and Catalyst Design for Metal-air Batteries Nanostructure-Interface engineering of halide perovskite catalysts toward solar-fuel generation Transition-metal single atom catalysts for valorization of biomass-derived chemicals. Integrated CO2 capture and electrolysis for syngas production Afternoon Tea /Lab Tour Chair: Yuling Wang Using visible light to enhance thermal catalytic CO2 conversion From CO2 Electrolysis to Magnetic Carbon Formation Gas-liquid-solid flow at microscale towards applications in micro- and nano-reactors
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10:30 Peter Su	13:30 13:45 14:00 14:15 14:30 15:00 15:20 15:35 15:50 16:05 16:20 17:30	Jinqiang Zhang Bing Sun Rui Tang Jiaquan Li Yong Zhao Emma Lovell Simin Moradmand Zhengbiao Peng Xunyu Lu	UTS USYD USYD USYD CSIRO Newcastle UNSW UON UON UNSW	Lunch Chair: Jiabao Yi Refining structures of electrochemical catalysts for energy storage and conversion Electrode and Catalyst Design for Metal-air Batteries Nanostructure-Interface engineering of halide perovskite catalysts toward solar-fuel generation Transition-metal single atom catalysts for valorization of biomass-derived chemicals. Integrated CO2 capture and electrolysis for syngas production Afternoon Tea /Lab Tour Chair: Yuling Wang Using visible light to enhance thermal catalytic CO2 conversion From CO2 Electrolysis to Magnetic Carbon Formation Gas-liquid-solid flow at microscale towards applications in micro- and nano-reactors Sustainable manufacturing of hydrogen peroxide: where are we now? Award (G05, SEB Building) Dinner (Kingsford Peking Restaurant, 498 Anzae Parade Kingsford, NSW) Session 3 - Biomaterials and Devices for Healthier Life (G07, SEB Building) Chair: Kang Liang
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Chair: Jiangtao Xu	13:30 13:30 13:45 14:00 14:15 14:30 15:20 15:20 15:35 16:05 16:05 16:20 17:30	Jinqiang Zhang Bing Sun Rui Tang Jiaquan Li Yong Zhao Emma Lovell Simin Moradmand Zhengbiao Peng Xunyu Lu Lingqing Zong Cindy Gunawan Peter Su	UTS UTS USYD USYD USYD CSIRO Newcastle UNSW UON UON UON UNSW UTS UTS	Lunch Chair: Jiabao Yi Refining structures of electrochemical catalysts for energy storage and conversion Electrode and Catalyst Design for Metal-air Batteries Nanostructure-Interface engineering of halide perovskite catalysts toward solar-fuel generation Transition-metal single atom catalysts for valorization of biomass-derived chemicals. Integrated CO2 capture and electrolysis for syngas production Afternoon Tea /Lab Tour Chair: Yuling Wang Using visible light to enhance thermal catalytic CO2 conversion From CO2 Electrolysis to Magnetic Carbon Formation Gas-liquid-solid flow at microscale towards applications in micro- and nano-reactors Sustainable manufacturing of hydrogen peroxide: where are we now? Award (G05, SEB Building) Dinner (Kingsford Peking Restaurant, 498 Anzac Parade Kingsford, NSW) Session 3 - Biomaterials and Devices for Healthire Life (G07, SEB Building) Chair: Kang Liang Oxygen-Vacancy-Rich MXene Nanonetworks: A Novel Strategy for Antimicrobial Sonodynamic Therapy. Adaptation of Biofilm-Forming Pathogen to Antimicrobial Nanoparticle Intracellular Temporal, Spatial and Thermal Dynamics Revealed by Biophysical Nanotools and Advanced Imaging
11:20 Shuying Wu	13:30 13:45 14:00 14:15 14:30 15:20 15:20 15:50 16:05 16:20 17:30 10:00 10:15 10:30 10:45	Jinqiang Zhang Bing Sun Rui Tang Jiaquan Li Yong Zhao Emma Lovell Simin Moradmand Zhengbiao Peng Xunyu Lu Lingqing Zong Cindy Gunawan Peter Su	UTS UTS USYD USYD USYD CSIRO Newcastle UNSW UON UON UON UNSW UTS UTS	Lunch Chair: Jiabao Yi Refining structures of electrochemical catalysts for energy storage and conversion Electrode and Catalyst Design for Metal-air Batteries Nanostructure-Interface engineering of halide perovskite catalysts toward solar-fuel generation Transition-metal single atom catalysts for valorization of biomass-derived chemicals. Integrated CO2 capture and electrolysis for syngas production Afternoon Tea /Lab Tour Chair: Yuling Wang Using visible light to enhance thermal catalytic CO2 conversion From CO2 Electrolysis to Magnetic Carbon Formation Gas-liquid-solid flow at microscale towards applications in micro- and nano-reactors Sustainable manufacturing of hydrogen peroxide: where are we now? Award (G05, SEB Building) Dinner (Kingsford Peking Restaurant, 498 Anzac Parade Kingsford, NSW) Session 3 - Biomaterials and Devices for Healthier Life (G07, SEB Building) Chair: Kang Liang Oxygen-Vacancy-Rich MXene Nanonetworks: A Novel Strategy for Antimicrobial Sonodynamic Therapy. Adaptation of Biofilm-Forming Pathogen to Antimicrobial Nanoparticle Intracellular Temporal, Spatial and Thermal Dynamics Revealed by Biophysical Nanotools and Advanced Imaging Inspiration from the Past: Harnessing Ancient Movable Type Printing for Future Personalised Diagnosis of Stroke and Cerebral Thrombosis
11:50 Hoang-Phuong Phan UNSW Inorganic nanomembranes for wearable and implantable applications	13:30 13:45 14:00 14:15 14:30 15:20 15:20 15:50 16:05 16:20 17:30 10:00 10:15 10:30 10:45	Jinqiang Zhang Bing Sun Rui Tang Jiaquan Li Yong Zhao Emma Lovell Simin Moradmand Zhengbiao Peng Xunyu Lu Lingqing Zong Cindy Gunawan Peter Su	UTS UTS USYD USYD USYD CSIRO Newcastle UNSW UON UON UON UNSW UTS UTS	Lunch Chair: Jiabao Yi Refining structures of electrochemical catalysts for energy storage and conversion Electrode and Catalyst Design for Metal-air Batteries Nanostructure-Interface engineering of halide perovskite catalysts toward solar-fuel generation Transition-metal single atom catalysts for valorization of biomass-derived chemicals. Integrated CO2 capture and electrolysis for syngas production Afternoon Tea /Lab Tour Chair: Vuling Wang Using visible light to enhance thermal catalytic CO2 conversion From CO2 Electrolysis to Magnetic Carbon Formation Gas-liquid-solid flow at microscale towards applications in micro- and nano-reactors Sustainable manufacturing of hydrogen peroxide: where are we now? Award (G05, SEB Building) Dinner (Kingsford Peking Restaurant, 498 Anzae Parade Kingsford, NSW) Session 3 - Biomaterials and Devices for Healthier Life (G07, SEB Building) Chair: Kang Liang Oxygen-Vacancy-Rich MXene Nanonetworks: A Novel Strategy for Antimicrobial Sonodynamic Therapy. Adaptation of Biofilm-Forming Pathogen to Antimicrobial Nanoparticle Intracellular Temporal, Spatial and Thermal Dynamics Revealed by Biophysical Nanotools and Advanced Imaging Inspiration from the Past: Harnessing Ancient Movable Type Printing for Future Personalised Diagnosis of Stroke and Cerebral Thrombosis Morning Tea/Lab Tour Chair: Jiangtao Xu
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13:45 Ying Zhu UTS Optical strategies for single extracellular vesicle detection towards early cancer diagnosis 14:00 Xiaoxue Xu UTS Dynamic Nonlinearity in Upconversion Nanoparticles for Advanced Biomedical Optical Imaging 14:15 Bingyang Shi MQ New Strategies for Brain Disease Drug Development from new target discovery to Blood-Brain Barrier (BBB) Penetrative Nanomedicine 14:30 Zhen Jiang UOW Desiging Soft Robotic Materials 15:00 Afternoon Tea/Lab Tour Chair: Bingyang Shi 15:20 Tianruo Guo UNSW Advances in biology, Not Devices, Will Determine the Effectiveness of Neural Prostheses 15:35 Ming Li MQ High-Throughput Single-Cell and Single-Molecule Assays with Droplet Microfluidics 15:50 Zihao Wang USYD Developing Personalized Vein-Chips for Enhanced Cerebral Venous Sinus Thrombosis Diagnosis using a Movable Type Manufacturing Technique 16:05 Wenqian Wang UNSW Retrograde transport protein activates fast axonal transport of gold nanoparticles in live neurons 4 Award (G05, SEB Building)	12:30 13:30 13:45 14:00 14:15 14:30 15:00 15:20 15:35 15:50 16:05 16:20 17:30 10:45 11:00 11:20 11:35 11:35 11:50	Jinqiang Zhang Bing Sun Rui Tang Jiaquan Li Yong Zhao Emma Lovell Simin Moradmand Zhengbiao Peng Xunyu Lu Lingqing Zong Cindy Gunawan Peter Su Lining Ju Shuying Wu Thanh Nho Do Hoang-Phuong Phan	UTS UTS USYD USYD USYD USYD USYD USYD UNSW UON UON UON UNSW UTS UTS UTS UTS USYD USYD UNSW	Lunch Chair: Jiabao Yi Refining structures of electrochemical catalysts for energy storage and conversion Electrode and Catalyst Design for Metal-air Batteries Nanostructure-Interface engineering of halide perovskite catalysts toward solar-fuel generation Transition-metal single atom catalysts for valorization of biomass-derived chemicals. Integrated CO2 capture and electrolysis for syngas production Afternoon Tea /Lab Tour Chair: Yuling Wang Using visible light to enhance thermal catalytic CO2 conversion From CO2 Electrolysis to Magnetic Carbon Formation Gas-liquid-solid flow at microscale towards applications in micro- and nano-reactors Sustainable manufacturing of hydrogen peroxide: where are we now? Award (GO5, SEB Building) Dinner (Kingsford Peking Restaurant, 498 Anzac Parade Kingsford, NSW) Session 3 - Biomaterials and Devices for Healthier Life (G07, SEB Building) Oxygen-Vacancy-Rich MXene Nanonetworks: A Novel Strategy for Antimicrobial Sonodynamic Therapy. Adaptation of Biofilm-Forming Pathogen to Antimicrobial Nanoparticle Intracellular Temporal, Spatial and Thermal Dynamics Revealed by Biophysical Nanotools and Advanced Imaging Inspiration from the Past: Harnessing Ancient Movable Type Printing for Future Personalised Diagnosis of Stroke and Cerebral Thrombosis Morning Tea/Lab Tour Chair: Jiangtao Xu Wearable sensors based on polymer nanocomposites Functional soft materials for surgical robots and medical devices Inorganic nanomembranes for wearable and implantable applications Wearable battery for health monitoring Lunch
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14:15 Bingyang Shi MQ New Strategies for Brain Disease Drug Development from new target discovery to Blood-Brain Barrier (BBB) Penetrative Nanomedicine Designing Soft Robotic Materials	13:30 13:30 13:45 14:00 14:15 14:30 15:00 15:20 15:35 15:50 16:05 16:05 16:20 17:30 10:15 10:30 10:45 11:20 11:20 11:35 12:30 12:30	Jinqiang Zhang Bing Sun Rui Tang Jiaquan Li Yong Zhao Emma Lovell Simin Moradmand Zhengbiao Peng Xunyu Lu Lingqing Zong Cindy Gunawan Peter Su Lining Ju Shuying Wu Thanh Nho Do Hoang-Phuong Phan Tao Wan	UTS UTS USYD USYD USYD CSIRO Newcastle UNSW UON UON UON UNSW UTS UTS UTS UTS USYD UNSW UNSW UNSW	Lunch Chair. Jiabao Yi Refining structures of electrochemical catalysts for energy storage and conversion Electrode and Catalyst Design for Metal-air Batteries Nanostructure-Interface engineering of halide perovskite catalysts toward solar-fuel generation Transition-metal single atom catalysts for valorization of biomass-derived chemicals. Integrated CO2 capture and electrolysis for syngas production Afternoon Tea Lab Tour Chair: Yuling Wang Using visible light to enhance thermal catalytic CO2 conversion From CO2 Electrolysis to Magnetic Carbon Formation Gas-liquid-solid flow at microscale towards applications in micro- and nano-reactors Sustainable manufacturing of hydrogen peroxide: where are we now? Award (G05, SEB Building) Dinner (Kingsford Peking Restaurant, 498 Anzac Parade Kingsford, NSW) Session 3 - Biomaterials and Devices for Healthier Life (G07, SEB Building) Chair: Kang Liang Oxygen-Vacancy-Rich MXene Nanonetworks: A Novel Strategy for Antimicrobial Sonodynamic Therapy. Adaptation of Biofilm-Forming Pathogen to Antimicrobial Nanoparticle Intracellular Temporal, Spatial and Thermal Dynamics Revealed by Biophysical Nanotools and Advanced Imaging Inspiration from the Past: Harnessing Ancient Movable Type Printing for Future Personalised Diagnosis of Stroke and Cerebral Thrombosis Morning Tea/Lab Tour Chair: Jiangto Xu Wearable sensors based on polymer nanocomposites Functional soft materials for surgical robots and medical devices Inorganic nanonembranes for wearable and implantable applications Wearable battery for health monitoring Lunch Chair: Shuying Wu Small extracellular vesicles as new biomarkers in cancer diagnosis and therapy
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