



4th ThermaSMART Workshop with University of Pretoria, Cape Town – 10 & 11 August, 2023

Thursday – 10 th August 2023		
9:00 – 9:30	Registration opens	Light refreshments
9:30 – 10:00	Opening of the workshop	Prof. Prashant Valluri Dr. Marilize Everts
10:00 – 11:00	Keynote 1	Mr John Ferreira
11:00 – 11:20	Coffee break	
11:20 – 11:40	Thermal hysteresis in the Leidenfrost effect	Yutaku Kita
11:40 – 12:00	Fluid motion without energy supply	Panagiotis Theodorakis ^{1*} , Russell Kajouri ¹ , Piotr Deuar ¹ , Rachid Bennacer ² , Jan Židek ³ , Sergei Egorov, Andrey Milchev
12:00 – 12:20	TACoolTPS – Advanced Cooling of high power microsystems using Two-Phase Flows Systems in Complex Geometries	Gustavo R. Anjos, Prashant Valluri
12:20 – 12:40	Surprising dynamics of ellipsoidal particles in flow	Rama Govindarajan
12:40 – 13:40	Lunch & Networking	
13:40 – 14:00	Chaotic Orbits of Immersed Ellipsoids	Andrew Boyd, Prashant Valluri, David Scott, Mark Sawyer, Rama Govindarajan
14:00 – 14:20	Exploring Dynamics and Hazards of Levitating Droplets on Superheated Gallium: Implications for High-Temperature Applications	Adrian Jonas, Daniel Orejon, Khellil Sefiane
14:20 – 14:40	Heat transfer characteristics in high temperature thermal energy storage	Shuai Zhang and Yuying Yan
14:40 – 15:00	Effect of Needle and Dosing Parameters on Contact Angle Hysteresis	Janice To, Rodrigo Ledesma Aguilar, Khellil Sefiane, Daniel Orejon
15:00 – 15:20	Coffee break	
15:20 – 15:40	Effect of surface curvature on confined jet impingement boiling	Daiman Somerville, Kenneth Craig, Prashant Valluri
15:40 – 16:00	Introducing Vortices via Vortex Generators as a method of Spent Vapour Removal during Jet Impingement Boiling	Francois le Roux, Kenneth Craig, Prashant Valluri
16:00 – 16:20	Experimental and Numerical Heat Transfer Investigation of Reverse Jet Impingement	Abdallah Ahmed, Yuying Yan
18:30	Networking Dinner	Lagoon Beach Hotel



4th ThermaSMART Workshop, with University of Pretoria, Cape Town – 10 & 11 August, 2023

Friday – 11 th August 2023		
9:00 – 9:30	Registration opens	
9:30 – 10:30	Keynote 2	Prof Tunde Bello-Ochende
10:30 – 10:50	Coffee break	
10:50 – 11:10	Solar Evaporation Enhancement via Synergistic Cooperation between Copper Foam and Graphene Oxide Functionalisation	Fengyong Lv, Jie Miao, Jing Hu, and Daniel Orejon
11:10 – 11:30	Evaporating populations of sessile droplets comprising binary mixtures	Debarshi Debnath, Anna Malachtari, George Karapetsas, Daniel Orejon, Khelil Sefiane, Alidad Amirfazli, and Prashant Valluri
11:30 – 11:50	Binary Mixture Droplet Wetting and Evaporation Phase Change on Hydrophilic Structured Surfaces	Khaloud Moosa Al Balushi, Gail Duursma, Prashant Valluri, Khellil Sefiani, Daniel Orejon
11:50 – 12:10	Transient growth stability analysis of evaporating sessile drops comprising binary mixtures	Katie Thomson, George Karapetsas, Yutaku Kita, Prashant Valluri, Khelil Sefiane, Daniel Orejon
12:10 – 13:10	Lunch, Networking	
13:10 – 13:30	Dropwise Condensation on Silicone Oil Grafted Surfaces	Anam Abbas, Gary G. Wells, Glen McHale, Khelil Sefiane, Daniel Orejon
13:30 – 13:50	Use of an Agent Based Approach to Study Drop-wise Condensation Heat Transfer	Joaquin E. Ramirez-Medina, Mehdi Ataei, Alidad Amirfazli
13:50 – 14:10	Experimental Flow Boiling with Binary and Self-Rewetting Mixtures at Low Mass Fluxes in a High Aspect Ratio Microchannel at Different Inclinations with One-sided Heating	Mandi Venter, Arif Widyatama, Daniel Orejon Mantecon, Jaco Dirker, Khellil Sefiane
14:10 – 14:30	Experimental Study of Flow Boiling Characteristics in High Aspect Ratio Microchannels with the Effect of Flow Orientation	Arif Widyatama, Daniel Orejon, Khelil Sefiane
14:30 – 14:50	Flow boiling heat transfer with self-rewetting fluids	André Pienaar, Jaco Dirker, Prashant Valluri
14:50 – 15:10	Coffee break	

15:10 – 15:30	Analysis of wettability effect on the heat transfer coefficient in pool boiling	Giada Minozzi, Alessio D. Lavino, Edward R. Smith, Jionghui Liu, Tassos Karayiannis, Khellil Sefiane, Omar O. Matar, David Scott, Timm Krüger, and Prashant Valluri
15:30 – 15:50	Numerical modelling of bubble dynamics on roughened surfaces	Wilhelm Johann van den Bergh, Panagiotis E. Theodorakis, Marilize Everts
15:50 – 16:10	Numerical Investigation of the Influence of Cavity Geometry on Bubble Dynamics in Nucleate Pool Boiling Conditions	Mitchell Whiting, Marilize Everts, Panagiotis E. Theodorakis
16:10 – 17:10	Business meeting - All	Next Steps for ThermaSMART Network & concluding remarks
18:30	Networking Dinner	Quay 4 (V&A Waterfront)