MITCHELL AUDITORIUM

DAY 1

MONDAY AUGUST 5, 2024

8:30-930 AM	**Registration**			
9:30-9:45 AM	**Opening Remarks**	Aleister Saunders, Jin Wen		**Emcee: Ben Davis**
9:45-10:30 AM	**Plenary**			**Chair: Yury Gogotsi**
	Babak Anasori	Purdue University	USA	
	"Defect Engineering of 2D MXenes at Ambient and Elevated Temperatures"			
10:30-11:00 AM	**Keynote**			
	Michel Barsoum	Drexel University	USA	
	"MAX Phases, Past, Present and Future"			
11:00-11:30 AM	**Keynote**			
	Husam Alshareef	King Abdullah University of Science & Technology (KAUST)	Saudi Arabia	
	"Recent Developments in MXetronics"			
11:30 AM -12:30 PM	**LUNCH**			
12:30-1:15 PM	**Panel**	**"The Place of MXenes in the Nanomaterials World"**		
	Paul Weiss	University of California, Los Angeles	USA	**Moderator**
	De-en Jiang	Vanderbilt University	USA	
	Paweł Michalowski	Łukasiewicz Research Network – Institute of Microelectronics and Photonics	Poland	
	Zahra Fakhraai	University of Pennsylvania	USA	
	Po-Yen Chen	University of Maryland	USA	
1:15 -2:15 PM	**Session**	**Synthesis of MXenes**		**Chair: Dmitri Talapin**
	B. Layla Mehdi	University of Liverpool	UK	
	"In-situ (S)TEM Study of Synthesis and Degradation Processes of MXenes for Energy Storage Application"			
	Chris Shuck	Rutgers University	USA	
	"Using Multiple M-Elements to Understand the Chemistry and Structure of MXenes"			
	Ian Kinloch	University of Manchester	UK	
	"Electrochemical Exfoliation of MXenes and Their Use in Energy Storage and Composites"			
2:15 - 3:15 PM	**Session**	**Optical and Electronic Properties**		**Chair: Chong Min Koo**
	Steve May	Drexel University	USA	
	"Magnetotransport and weak localization in $Ti_3C_2T_x$ single flakes"			
	Lyubov Titova	Worcester Polytechnic Institute	USA	
	"Ultrafast Photoexcitations in 2D MXenes"			
	Bahram Nabet	Drexel University	USA	
	"Co-optimization of van der Waals (vdW) MXene heterojunctions with two-dimensional electron gas (2DEG) for ultrahigh-speed optoelectronics"			
3:15 - 3:45 PM	**BREAK**			
3:45 - 5:15	**Session**	**Modeling and Simulation**		**Chair: Vadym Mochalin**
	Andrew Rappe	University of Pennsylvania	USA	
	"Bridging Theory and Experiment Towards Designing MXenes with Tailored Properties"			
	Aleksandra Vojvodic	University of Pennsylvania	USA	
	"Hydrogen Production and Storage Enabled by MXenes"			
	Hendrik Heinz	University of Colorado Boulder	USA	
	"Simulation of MXenes and Related 2D Hybrid Materials Up to the Micrometer Scale in High Accuracy"			
	Moses Abraham Bokinala	Drexel University	USA	
	"When MXenes Meet Machine Learning: A Promising Initiative Towards Data-Intensive Scientific Revolution"			
5:15 - 6:00 PM	**Plenary Lecture**			**Chair: Michel Barsoum**
	Dmitri Talapin	University of Chicago	USA	
	"Inorganic, Organic, and Organometallic Surface Chemistry of MXenes"			
6:00-7:00 PM	**Cocktail Reception**			
6:00-8:00 PM	**Poster Session**			

PARALLEL SESSIONS IN HILL CONFERENCE ROOM

	MONDAY AUGUST 5	HILL CONFERENCE ROOM
2:00 - 3:15 PM	**Session - Processing**	**Chair: Joselito Razal**
	Chandra Adhikari	Fayetteville State University, USA
	"First-principles Study on Two-Dimensional (Ti, Ta) Double-Transition Metal Carbide MXenes"	
	Jouan Yu	Rutgers University, USA
	"Self-Limiting Electrospray Deposition of MXene Composites via Sub-percolation Assembly"	
	Krutarth Kamath	Purdue University, USA
	"Time-dependent colloidal stability of Ti_3C_2Tx MXene: Effect of Ti_3AlC_2 MAX Phase Purity, Synthesis Protocol, and Storage Conditions"	
	Hirotaka Ooi	Japan Material Technologies Corporation, Japan
	"Non-contact Evaluation Method for Concentration and Dispersion Stability of Delaminated MXene in Water using X-ray Transmittance Measurements"	
	Yumei Ye	City University of New York, USA
	"Simple and Efficient Defluorination of PFAS in aquatic solution by V_2C MXene and H_2O_2"	
3:15 - 3:45 PM	**BREAK**	
3:50 - 5:05	**Session - Synthesis**	**Chair: Chris Shuck**
	Marley Downes	University of Chicago, USA
	"Synthesis of (Mo2/3V1/3)n+1CnTx (n = 1, 2, 3): Exploring MXene Structure-Property Relationships"	
	Raegan Beers	University of Washington, USA
	"Synthesis and Aqueous Stability Vanadium Carbide (V2C) MXene Films"	
	Di Wang	University of Chicago, USA
	"Progress in the Direct Synthesis of Two-Dimensional Transition Metal Carbides and Nitrides (MXenes)"	
	Julian Thomas Muller	Technische Universität Berlin, Germany
	"Molten salt etching beyond chlorine salts"	
	Goknur Cambaz Buke	Tobb University of Economics and Technology, Turkey
	"Growth of 1D and 2D MoC Through Chemical Vapor Deposition"	

DAY 2

TUESDAY AUGUST 6, 2024

9:00 - 9:45 AM	**Plenary Lecture**			**Chair: Tae-Woo Lee**
	Valeria Nicolosi	Trinity College of Dublin	Ireland	
	"Processing and Applications of 2D MXene Inks"			
9:45 - 10:15 AM	**Keynote Lecture**			
	Abdoulaye Djire	Texas A&M University	USA	
	"Operando Spectroelectrochemical Techniques for Elucidating the Mars-van Krevelen Cycle for Green Ammonia Production on Nitride MXene"			
10:15 - 10:45 AM	**BREAK**			
10:45 - 11:45 AM	**Session**	**Applications of MXenes**		**Chair: Mohammad Zarifi**
	Dhriti Nepal	Air Force Research Laboratory	USA	
	"Vitrimer Nanocomposites: Thermomechanical and Self-Healing Properties"			
	Chong Min Koo	Sungkyunkwan University	South Korea	
	"MXenes for Multispectral Electromagnetic Shielding"			
	Seon Joon Kim VIRTUAL	Korea Institute of Science and Technology (KIST)	South Korea	
	"Organic, Inorganic, and Organic-Inorganic Hybrid Surface Functionalization of MXenes for Gas Sensors"			
11:45 AM - 12:30 PM	**Panel**	**"Applications Making an Impact"**		
	Masoud Soroush (membranes)	Drexel University	USA	**Moderator**
	Hassan Arafat (water) VIRTUAL	Khalifa University	UAE	
	Shayan Seyedin (textiles) VIRTUAL	Newcastle University	UK	
	Susan Sandeman (healthcare)	University of Brighton	UK	
	Kosuke Kawai (energy storage)	Waseda University	Japan	
12:30 - 1:30 PM	**LUNCH**			
1:30 - 1:50 PM	**Invited Talk**			**Chair: Po-Yen Chen**
	Andreas Rosenkranz	University of Chile	Chile	
	"Tunable Mechanical and Tribological Properties - Underlying Mechanisms and Kinetics"			
1:50 - 2:50 PM	**Session**	**Processing**		**Chair: Po-Yen Chen**
	Micah Green	Texas A&M University	USA	
	"MXenes at Interfaces: Pickering Emulsions and Structured Composites"			
	Faisal Shahzad VIRTUAL	Khalifa University	UAE	
	"Tuning the Morphology and Architecture of Ni/Mxene Composites for Electromagnetic Interference Shielding"			
	Ken Aldren Usman	Institute For Frontier Materials, Deakin University		
	"MXene Liquid Crystals for Multifunctional Architectures"			
2:50 - 3:30 PM	**Session**	**MXene and Water**		**Chair: Zahra Fakhraai**
	Vadym Mochalin	Missouri University of Science & Technology	USA	
	"Reactivity of 2D Transition Metal Carbides (MXenes)"			
	Naresh Osti	Oak Ridge National Lab	USA	
	"Dynamics of Confined Fluids in MXenes - A Neutron-based Approach"			
3:30 - 4:00 PM	**BREAK**			
4:00 - 5:20 PM	**Session**	**Energy & Catalysis**		**Chair: Michael Naguib**
	Majid Beidaghi	University of Arizona	USA	
	"Tailoring Mechanical and Electrochemical Properties of MXenes through Defect Engineering and Assembly"			
	Zdenek Sofer	University of Chemistry and Technology Prague	Czech Republic	
	"MXene Chemistry and Topochemical Conversion for Energy Storage Applications"			
	Ana Primo	Instituto de Tecnología Química (UPV-CSIC) - Polytechnic University of Valenc	Spain	
	"MXenes Dots as Photocatalysts for CO_2 Hydrogenations"			
	Amanda Sfeir	Université de Lille	France	
	"Unlocking the potential of MXenes in H related catalytic reactions"			
5:20 - 6:00 PM	**Editors & Publishers Panel**	**Where and How to Publish MXene Research**		
	Babak Anasori	Graphene & 2D Materials		**Moderator**
	Anita Lekhwani	Springer Nature		
	Emily Edwards	Matter/Cell Press		
	Yohan Dall'Agnese VIRTUAL	Nature		
	Michael Ghidiu VIRTUAL	Nature Communications		
6:00 - 7:00 PM	**Cocktail Reception**			
6:00 - 8:00 PM	**Poster Session**			

	TUESDAY AUGUST 6	HILL CONFERENCE ROOM
10-45-11:45	**Session - Synthesis (cont.)**	**Chair: Stefano Ippolito**
	Anupma Thakur	Purdue University, USA
	"Theory-driven Synthesis of Tungsten Titanium Carbide MXene for Hydrogen Evolution Electrocatalysis"	
	André Taylor	New York University, USA
	"Innovations in MXene Integration for Enhanced Performance in Cadmium Telluride Solar Cells"	
	Mark Anayee	Air Force Research Laboratory, USA
	"Surface and Diffusion Limited Layer-by-layer Etching of MAX Phases for MXene synthesis"	
	John Anderson	University of Chicago, USA
	"Catalytic Applications of Organometallic MXenes"	
12:30 - 1:30 PM	**LUNCH**	
2:00 - 3:30 PM	**Session - Energy Storage**	**Chair: Zdenek Sofer**
	John Wang	Drexel University, USA
	"Stability of Pseudocapacitive Energy Storage in $Ti_3C_2T_x$ MXene in a Wide Temperature Range"	
	Sixbert Muhoza	Argonne National Laboratory, USA
	"Advancing Sodium-Ion Batteries with Durable High-Capacity Electrodes Based on Customized MXenes"	
	Andrii Boichuk	University of Valencia, Spain
	"Pseudocapacity Machanisms in Delaminated and Non-delaminated MXenes"	
	Mawethu Pascoe Bilibana VIRTUAL	North-West University, South Africa
	"X-ray Diffraction Profile and Electrochemical Analysis of Green Synthesized MXene Nanoparticles"	
	Yasser Hassan	Qatar University, Qatar
	"Enhanced Energy Density in Sodium-Ion Batteries: The Synergistic Role of MXene, and Multielement doped- P2 Layered Oxides"	
3:30 - 4:00 PM	**BREAK**	
4:00 - 5:30 PM	**Session - Optical and Thermal Properties**	**Chair: Abdoulaye Djire**
	Jeffrey Simon	Purdue University, USA
	"Nonlinear Optical Properties of 2D Transition Metal Carbides and Nitrides"	
	Hyunho Kim	Drexel University, USA
	"Understanding Light-Matter Interactions of MXenes"	
	Brian Wyatt	Purdue University, USA
	"Alkali Cation Defect Stabilization of MXenes at Elevated Temperatures"	
	Saketh Merugu	University of Toledo, USA
	"MXene for Thermal Management"	
	Bhoj Gautam	Fayetteville State University, USA
	"Investigation of Structural Properties of Nb_2CT_x MXenes at Elevated Temperature"	
	Seong-Ju Hwang	Yonsei University, South Korea
	"Conductive 2D Inorganic Nanosheets and their Nanohybrids"	

DAY 3

WEDNESDAY AUGUST 7, 2024

9:00 - 9:45 AM	**Plenary Lecture**			**Chair: Chong Min Koo**
	Joselito Razal	Deakin University	Australia	
	"2D MXenes in Fibers and Textiles: Past, Present, and Future Applications"			
9:45 - 10:15 AM	**Keynote Lecture**			
	Mohammad Zarifi	The University of British Columbia	Canada	
	"MXene Guides Electromagnetic Waves in Communications and Shielding"			
10:15 - 10:45 AM	**BREAK**			
10:45 AM - 12:05 PM	**Session**	**Biomedical Applications**		**Chair: Vadym Mochalin**
	Acelya Yilmazer	Ankara Univeristy	Turkey	
	"From Cancer Research to Anti-virals: A Journey with MXenes and 2D Materials"			
	Raghav Garg	University of Pennsylvania	USA	
	"Implantable Soft Input-output Bioelectronic Interfaces Enabled by MXene Hydrogels"			
	Sanjiv Dhingra	University of Manitoba	Canada	
	"MXene Nanomaterials for Cardiac Regenerative Medicine"			
	Maksym Pogorielov	University of Latvia	Latvia	
	"Novel Concept of MXene-assisted Targeted Photothermal Therapy of Melanoma"			
12:05 - 1:05 PM	**LUNCH**			
1:05 - 2:05 PM	**Session**	**Emerging Applications with High Impact**		**Chair: Dhriti Nepal**
	Joshua Uzarski	US Army DEVCOM Soldier Center	USA	
	"MXenes and Low-dimensional Materials for US Defense Applications"			
	Anirudha V. Sumant	Argonne National Laboratory	USA	
	"The Rise of MXene as an Emerging Solid Lubricant with Vanishing Friction and Wear"			
	Tae-Woo Lee VIRTUAL	Seoul National University	South Korea	
	"Two-Dimensional Graphene and MXene for Flexible and Stretchable Displays"			
2:05 - 2:50 PM	**Panel**	**Scaling Up**		
	Brendan Delacy	Ballydel	USA	**Moderator**
	Armin VahidMohammadi VIRTUAL	Tesla	USA	
	Kyle Matthews	MXene Inc.	USA	
	Thomas Moissinac	Nanoplexus	UK	
2:50 - 3:35 PM	**Plenary**			**Chair: Yury Gogotsi**
	Michael Naguib	Tulane University	USA	
	"MXene Nano- and Atomic-Scale Engineering for Electrochemical Energy Storage and Conversion"			
3:35 - 4:00 PM	**Awards and Closing Remarks**			
	Closing Remarks	Yury Gogotsi		
	Awards (Posters & Talks)			
	Agilent Award Presentation			

	WEDNESDAY AUGUST 7	HILL CONFERENCE ROOM
10:45 AM - 12:00 PM	**Session - Environmental Applications: Water & Catalysis**	**Chair: Hermenegildo Garcia Gómez**
	Kiandokht Pakravan	Auburn University, USA
	"The Effect of MXene Microstructure on the Mass Transport Through MXene Membranes"	
	Hesam Jafarian	The University of Alabama, USA
	"MXene Membranes for Water Treatment: From State of the Art Lab-scale to Large Scale Fabrications"	
	Joshua Little	University of Maryland, College Park, USA
	"Morphology Controlled Synthesis of Catalytic Metal Nanocrystals within 2D Material Nanoconfinements"	
	Shiba Adhikari	Argonne National Laboratory, USA
	"Cu-based MXene Electrocatalysts for Selective CO_2 Reduction"	
	Yuan Zhang	Drexel University, USA
	"Mechanical Suppression of Electron Transfer in Subnanometer Confinement between MXene Layers"	
12:05 - 1:05 PM	**LUNCH**	
1:05 - 1:50 PM	**Session - Electronic Properties & Applications**	**Chair: Majid Beidaghi**
	Hui Fang	University of Pennsylvania, USA
	"Investigating the Mechanisms of Oxidation and Charge Transport in $Ti_3C_2T_x$ MXene"	
	Francesca Urban	Drexel University, USA
	"Fundamental Investigation of the Charge Transport Mechanisms in $Ti_3C_2T_x$ Single-flake Devices"	
	Stefano Ippolito	Drexel University, USA
	"Exotic Photothermal Properties in Ti-based MXenes for Optoelectronics"	