



2026 RESEARCH SYMPOSIUM

 **CENTRE FOR RESEARCH AND
APPLICATIONS IN FLUIDIC TECHNOLOGIES**



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WELCOME MESSAGE

Welcome to the 2026 CRAFT Symposium, proudly presented by the Centre for Research and Applications in Fluidic Technologies (CRAFT) a collaborative research initiative with the University of Toronto, the National Research Council of Canada and Unity Health Toronto. It is a pleasure to have you join us as we explore the latest developments in microfluidic and lab-on-a-chip technologies.

CRAFT brings together leading researchers from academia, government, industry, and healthcare, spanning every stage of the device development process. Through our strong collaborative network across the National Research Council of Canada's Medical Devices Research Centre, the University of Toronto, Unity Health Toronto, and numerous industry partners, our mission is to lead the development and translation of innovative diagnostics, organ-on-a-chip systems, and biofabrication technologies. These efforts not only have the potential to improve healthcare outcomes for Canadians but also to foster a dynamic and globally competitive life sciences industry.

Thank you for joining us at the 2026 CRAFT Symposium. We are thrilled to present this year's outstanding lineup of speakers, informative workshops, and engaging presentations from our trainees and staff. Your participation in events like this helps drive innovation in healthcare and shape the future of microfluidic technologies.

Sincerely,
Dr. Hagar Labouta

Chair of the 2026 CRAFT Research Symposium



MESSAGE FROM THE CO-DIRECTORS

Welcome to the 2026 CRAFT Symposium, hosted by the Centre for Research and Applications in Fluidic Technologies (CRAFT). As we gather for our 19th annual meeting, we are excited to bring together researchers, trainees, clinicians, industry partners, and innovators to share ideas and advance the field of microfluidics. We look forward to an engaging program featuring keynote presentations, workshops, panel discussions, industry and collaborator spotlights, and trainee-led symposium and poster presentations.

CRAFT is a nationally unique collaborative research centre that brings together expertise from across disciplines and sectors. We are grateful for the support of the National Research Council of Canada, the University of Toronto, including the Institutional Strategic Initiatives Office and the Faculties of Pharmacy, Medicine, Arts & Science, and Applied Science & Engineering, and Unity Health Toronto. Together, we are working to develop and translate innovative microfluidics-enabled diagnostics, organ-on-chip systems, and biofabrication technologies that have the potential to improve healthcare outcomes for Canadians and people around the world.

We look forward to an exciting symposium filled with new discoveries and meaningful discussions. We encourage you to remain actively engaged in CRAFT's research programs, events, and educational initiatives, to explore opportunities for collaboration, licensing, and commercialization, and to help shape the future of microfluidic technologies alongside us.

Sincerely,

Dr. Claudia Dos Santos, Unity Health

Dr. Teodor Veres, NRC

Dr. Axel Guenther, UofT

ABOUT CRAFT

The Centre for Research and Applications in Fluidic Technologies (CRAFT) is a collaborative partnership between the University of Toronto (U of T), the National Research Council of Canada (NRC), and Unity Health Toronto (UHT). CRAFT supports the development of microfluidics-enabled systems for both industrial and clinical applications. Its research activities are focused on three key application areas: Diagnostics & Bioanalytics, Organ-on-a-Chip, and Biofabrication. CRAFT aims to advance the science and technology of microfluidics; provide Canadian trainees with unparalleled, hands-on learning opportunities across government, private sector, and academic laboratories; accelerate the creation, commercialization, and adoption of cutting-edge microfluidic technologies for biomedical applications; and stimulate industrial growth to support the large-scale manufacturing of these technologies within Canada. CRAFT also hosts graduate courses, academic visitors, and professional training programs, annually welcoming and training hundreds of highly qualified personnel.

CRAFT offers comprehensive expertise and infrastructure for rapid device prototyping and fabrication, preclinical validation, and scalable manufacturing under certified conditions, enabling smooth technology transfer to industry. Additionally, CRAFT operates clinical pods at St. Michael's Hospital (UHT) to support clinical validation efforts in collaboration with its partner institutions. Across its two campuses, CRAFT is equipped with more than \$50 million in state-of-the-art infrastructure, including Class 1,000 cleanrooms, biosafety level 2 laboratories, and over 150 high-tech instruments. The University of Toronto site operates as an open-access facility, serving five institutions, 80 research groups, 350 users, local startups and SMEs, and government scientists. The NRC Boucherville site spans 6,500 sq. ft. and supports rapid scale-up of device fabrication under certified conditions transferable to industrial manufacturing.



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TORONTO

DAY 1

AGENDA

7:45 am – 8:30 am	Breakfast & poster setup	Main reception
8:30 am – 8:45 am	Opening remarks	W280
8:45 am – 9:30 am	Keynote 1: Bruno Sarmento	W280
9:30 am – 10:00 am	Trainee talks	W280
10:00 am – 10:30 am	Coffee break	Main reception
10:30 am – 11:15 am	Keynote 2: Abe Lee	W280
11:15 am – 11:45 am	Trainee talks	W280
11:45 am – 12:00 pm	CSA announcement	W280
12:00 pm – 12:15 pm	Industry spotlight: Starlab Space	W280
12:15 pm – 12:45 pm	Lunch	Main reception
12:45 pm – 1:45 pm	Poster presentations	Main reception
1:45 pm – 2:15 pm	Podium presentation: Ilya Yakavets	W280
2:15 pm – 3:15 pm	Journal submission workshop	W280
3:15 pm – 3:45 pm	Coffee break	Main reception
3:45 pm – 4:30 pm	Keynote 3: David Junker	W280
4:30 pm – 5:15 pm	Trainee talks	W280
5:15 pm – 5:30 pm	Day 1 closing remarks	W280
5:30 pm – 7:00 pm	Reception	Main reception

DAY 2

AGENDA

7:45 am – 8:30 am	Breakfast	Main reception
8:30 am – 8:45 am	Opening remarks	W280
8:45 am – 9:30 am	NAMs workshop keynote: Milica Radisic	W280
9:30 am – 10:30 am	NAMs workshop multi-sectoral panel	W280
10:30 am – 11:00 am	Coffee break	Main reception
11:00 am – 12:00 pm	Trainee talks: NAMs	W280
12:00 pm – 12:30 pm	Trainee panel	W280
12:30 pm – 1:30 pm	Lunch & poster removal	Main reception
1:30 pm – 2:15 pm	Keynote 5: Petra Dittrich	W280
2:15 pm – 2:45 pm	Industry spotlight: Gordon Hall, Nicoya LifeSciences	W280
2:45 pm – 3:15 pm	Podium presentation: Ramzi Fattouh	W280
3:15 pm – 3:45 pm	Closing remarks & Trainee Awards	W280

ABOUT OUR KEYNOTE SPEAKERS



Dr. Bruno Sarmento
Universidade de Porto
Portugal

Microengineered 3D multicompartmental platforms for drug and nanomedicine screening across complex tissue and disease models

Dr. Bruno Sarmento leads the Nanomedicines & Translational Drug Delivery group in i3S: Instituto de Investigação e Inovação em Saúde da Universidade do Porto. Dr. Sarmento's interests are focused on the development of drug delivery systems, with special attention on nanotechnology, and their interdisciplinary application to the pharmaceutical and biomedical fields. He pioneered nanofabrication approaches using different macro and microfluidics methodologies that allow for the encapsulation of small molecules and biopharmaceuticals for distinct purposes and their functionalization with active ligand moieties to target biological receptors. His research contributes with fundamental insights on nanocarriers used for drug delivery applications in order to understand their mechanism of transport at the tissue and cellular levels and on the advantages of nanosystems used for prevention, diagnostics and therapy.



Dr. Abe Lee
University of California, Irvine
USA

Microfluidic cell engineering for personalized medicine

Dr. Abraham (Abe) P. Lee is Chancellor's Professor of Biomedical Engineering (BME) and MAE at the University of California, Irvine (UCI). He served as department chair for BME from 2010-2019. He is currently Director of the NSF I/UCRC "Center for Advanced Design & Manufacturing of Integrated Microfluidics" (CADMIM). Dr. Lee served as Editor-in-Chief for the Lab on a Chip journal from 2017-2020. Prior to UCI, he was Senior Technology Advisor at National Cancer Institute (NCI), Program Manager in the Microsystems Technology Office at DARPA (1999-2001), and a group leader with Lawrence Livermore National Lab (LLNL). Dr. Lee's current research focuses on integrated microfluidic systems for precision medicine including liquid biopsy, microphysiological systems, cell engineering, and immunotherapy. His research has contributed to the founding of several start-up companies. He is inventor of over 60 issued US patents and is author of over 130 journals articles. Professor Lee was awarded the 2009 Pioneers of Miniaturization Prize and is fellow of the National Academy of Inventors (NAI), the American Institute of Medical and Biological Engineering (AIMBE), the Royal Society of Chemistry (RSC), the American Society of Mechanical Engineering (ASME), the International Academy of Medical and Biological Engineering, and the Biomedical Engineering Society (BMES).

ABOUT OUR KEYNOTE SPEAKERS



Dr. David Juncker
McGill University
Canada

Harnessing the force of nature for microfluidics and assays

Dr. David Juncker is a Canada Research Chair in Bioengineering and Professor, serving as Chair of Biomedical Engineering at McGill University. He earned a Diploma in Electronics-Physics at the University of Neuchatel in Switzerland. Juncker and his team invent and develop micro- and nanobioengineering technologies striving to find simple solutions to complex problems, and they introduced e.g. microfluidic probes, capillary circuits, and multiplexed, cross-reactivity-free immunoassays, leading to a number of spin-offs, with Nomic Bio the most successful one. His current interests are on light-based 3D printing, capillaries, and microscopy which are used for the analysis of single-proteins, -extracellular vesicles, -lipid nanoparticles and -cells, while the boundaries of throughput, multiplexing, sensitivity, and time-to-result for both laboratory and point-of-care diagnostic applications.



Dr. Milica Radisic
University of Toronto
Canada

Organs-on-a-chip: Building human models for a future beyond animal testing

Dr. Milica Radisic is a pioneer in organ-on-a-chip engineering and advanced biomaterials designed to accelerate tissue healing and minimize scarring. At the University of Toronto, she serves as a Professor and holds the Canada Research Chair in Organ-on-a-Chip Engineering, alongside her role as a Senior Scientist at the Toronto General Research Institute. A leader in both education and translation, Dr. Radisic directs the Ontario-Quebec Center for Organ-on-a-Chip Engineering and the NSERC CREATE training program. To bridge the gap between academic innovation and commercial reality, she also co-founded CRAFT, a landmark collaborative hub between the university and the National Research Council of Canada. She holds a B.Eng. from McMaster University, and a PhD from MIT under the supervision of Professor Robert Langer.



Dr. Petra Dittrich
ETH Zürich
Switzerland

Microfluidic model systems to study bacterial infections and treatment

Dr. Petra S. Dittrich is Professor of Bioanalytics at the Department of Biosystems Science and Engineering, ETH Zürich, Switzerland. Prof. Dittrich develops microfluidic devices for applications across the life sciences. Prof. Dittrich has published over 150 journal articles and co-authored several book chapters and a book. She received the prestigious Starting Grant from the European Research Council (ERC, from 2008-2014) as well as the ERC Consolidator Grant (2016-2021). She served as Associate Editor for the RSC journal Lab on a Chip (2016-2022) and was board member of the Chemical and Biology Microsystems Society (CBMS, 2018-2024). She is co-founder of the ETH spin-off DropGen (founded in 2026).

PODIUM PRESENTATIONS



Dr. Ilya Yakavets

Staff Scientist

Acceleration Consortium

Towards autonomous bioengineering: Learning loops for human organ mimicry

Dr. Ilya Yakavets is a Staff Scientist for the Human Organ Mimicry Self-Driving Laboratory at the Acceleration Consortium. Prior to this role, Ilya completed a postdoc at the University of Toronto working with Professor Eugenia Kumacheva's, where he engineered and validated a cutting-edge platform to optimize sequential, multi-drug cancer treatments for high efficacy and low toxicity. Dr. Yakavets completed his joint PhD in Nanotechnology and Bioengineering from the University of Lorraine and Belarusian State University in 2019.



Dr. Ramzi Fattouh

Clinical Molecular

Microbiology Testing Lead,
Unity Health Toronto

Tiny volumes, vast possibilities: Microfluidics from monitoring the ICU Microbiome to Clinical Metagenomics

Dr. Ramzi Fattouh, Clinical Microbiologist, leads the clinical molecular microbiology testing program at Unity Health Toronto. He holds a PhD in from McMaster University, and is a Fellow of the Canadian College of Microbiologists (FCCM). Dr. Fattouh serves as an examiner for the Canadian College of Microbiologists and was a member of Public Health Ontario Laboratories' quality working group for clinical microbiology whole genome sequencing. He sits on the Board of Directors for both the National Molecular Microbiology Diagnostics User Group (NMG) and the Canadian Association for Clinical Microbiology and Infectious Disease.



Dr. Gordon Hall

Associate Vice-President, R&D
Nicoya LifeSciences

A fluid approach to fluidics: Picking the right technology from FastHDX to Digital SPR

Dr. Gordon Hall is an R&D executive, engineer, and inventor specializing in translating complex science into accessible, intuitive products. Drawing on his expertise in microfluidics and nanotechnology, he builds both the technical systems and the strategic teams required to bring new intellectual property to market. He currently serves as Associate Vice President of R&D at Nicoya Lifesciences, where he leads the development of advanced tools supporting next-generation therapeutic innovation.

JOURNAL SUBMISSION WORKSHOP



Dr. Marc S. Lavine

Senior Editor
Science

Dr. Marc S. Lavine is a Senior Editor at Science, where he handles submissions spanning materials science, applied chemistry, biomaterials, robotics and engineering. He also oversees the Reviews section. He earned a BASc from the University of Toronto and a PhD from the University of Cambridge.



Dr. Rita Strack

Chief Editor
Nature Biomedical Engineering

Dr. Rita Strack is the Chief Editor of Nature Biomedical Engineering, a role she assumed in August 2025. She holds a PhD in Biochemistry and Molecular Biology from the University of Chicago and conducted her postdoctoral research at Cornell Medical College.

NAMS WORKSHOP

MODERATORS



Dr. Shaarika Sarasija

Program Director, Research
and Regulatory Science
Humane World for Animals



Dr. Milica Radisic

Professor & Canada Research Chair
University of Toronto



Dr. Margaret Magdesian

CEO & Founder
Ananda Devices



Dr. Edmond Young

Associate Professor
University of Toronto



Dr. Luchino Cohen

Senior Exploration Scientist
Canadian Space Agency



Dr. Alison McGuigan

Professor & Canada Research Chair
University of Toronto

TRAINEE PANEL

Moderator: Sarah McColman, PhD (Postdoctoral fellow, Labouta Lab, Unity Health Toronto)

- **Amid Shakeri, PhD** (Postdoctoral fellow, Radisic Lab, University of Toronto)
- **David Bodenstein, PhD** (Postdoctoral fellow, Radisic Lab, University of Toronto)
- **Mahmoud Sakr, PhD** (Postdoctoral fellow, Wheeler Lab, University of Toronto)
- **Eli Landau** (PhD student, Rocheleau Lab, University of Toronto)
- **Kara Walz** (MAsc student, Young Lab, University of Toronto)

TRAINEE TALKS

Thursday, June 18: 9:30 am - 10:00 am

Caner Dikyol Self-driving multimaterial bioprinting of human ventricular models for single ventricle disease

Paul Kelly A sepsis-predicting diagnostic for prioritized patient care in the ICU

Saira Khan Microfluidic development of functionalized Dex-MA microgels for the selective isolation of cancer cell subpopulations in liquid biopsy application

Thursday, June 18: 11:15 am - 12:00 pm

Kimia Abedi Automated fabrication of tunable ultra-thin extracellular matrix membrane scaffolds in an arrayable organ-on-a-chip platform

Tanmay Gupta Regenerative bioinks: Material-intrinsic properties drive immune-guided bone repair

Bernadette Ng A digital microfluidic platform for phage susceptibility testing to advance precision infectious disease care

Scan for full podium & poster abstracts



TRAINEE TALKS

Thursday, June 18: 4:30 pm - 5:10 pm

Lema Amiry Laser-induced graphene electrodes integrated with a microfluidic device

Enrui Lin Resource-efficient Bayesian optimization for self-calibrating liquid handling

Morteza Safari Trap and count: Microfluidic sample compartmentalization for biomolecular concentration quantification using a nanopore sensor

Dylan Siriwardena Development of a stem cell-based microfluidic co-culture model of early human embryo development and implantation

Friday, June 19: 11:00 am - 12:00 pm

David Bodenstein Investigating the mechanisms of mitochondrial transplant in cardiac-on-a-chip models

Eli Landau A dual-readout device linking metabolism and insulin secretion in single islets

Mahmoud Sakr Gentle single-cell isolation of neural progenitor cells on-chip using optoelectronic tweezers

Amid Shakeri Engineering a multi-organ platform to reveal cardiac suppression of cancer metastasis

Kara Walz Benchmarking osteoarthritic cartilage mechanical behaviour for the development of a multi-axial loading cartilage-on-a-chip device

Bhaskar Yechuri VitroFlo-ECIS: A perfusable barrier-on-chip platform with integrated real-time impedance sensing

Scan for full podium & poster abstracts



POSTER PRESENTATIONS



Poster #	Presenter	Title
1	Yasmin Abdelkader	A multi-organ-on-a-chip platform to model pregnancy-associated breast cancer and test targeted interventions
2	Dhana Abdo	A dermis-on-a-chip platform for screening of anti-fibrotic compounds
3	Michelle Allkanjari	microRNA-187 attenuates maladaptive remodeling following acute myocardial infarction
4	Garrett Beeghly	Primitive macrophages enhance the function and vascularization of heart-on-a-chip platforms
5	Taylor Goldblatt	Development of a tunable microfluidic chip to enable tumour-vessel interactions with in vitro microvascular networks (MVNs)
6	Richard Jiang	Studying cardiac tissue response using a 3D-printed ventricle
7	Jennifer Kieda	Engineering adaptive self-healing biomaterials from jammed microfluidic elastomeric particles
8	Jeremy Lant	Implementing digital microfluidics in a self-driving lab for sub-microliter liquid handling
9	Chuan Liu	Biomimetic fractal topography enhances podocyte maturation in vitro
10	Stephanie McGinnity	A robust protocol for the generation of highly concentrated, stable, and monodisperse microfluidic nanobubbles

POSTER PRESENTATIONS



Poster #	Presenter	Title
11	Ben Moon	A thermoplastic elastomer post-based hanging droplet platform for spheroid formation
12	Sargol Okhovatian	Primitive macrophages enhance contractility of in vitro whole heart model
13	Hanieh Rezaee	Laser micromachining and welding optimization for high-performance polycarbonate microfluidic devices
14	Karen Shen	Engineering vascularized cardiac tissues using bayesian optimization
15	Nicholas Soucy	High-throughput monodisperse spheroids cultured in microfluidic flow-focusing generated hollow hydrogel microcapsules
16	Steven Tran	Overcoming microfluidic throughput limits: Aqueous two-phase systems selectively partition and concentrate microfluidic nanobubbles
17	Dagwin Wachholz Junior	Pam-independent CRISPR/CAS12a electrochemical platform for ultrasensitive detection of cancer-related miRNAs at the point of care
18	Kimiya Raeissamie	Selective separation via affinity driven partitioning in microfluidic aqueous two phase systems (ATPS) using aqueous two-phase systems
19	Zhangli Wu	Precision lung-protective ventilation: ML-integrated EIT-guided strategies to maintain optimal strain and minimize VILI in experimental ARDS
20	Bonny Wu	Decentralized biomanufacturing of circular RNA vaccines

ORGANIZING COMMITTEE



Dr. Jennifer Doucet



Dr. Alaa Alsaafin



Zhamak Abdi



Dr. Sarah McColman



Dr. Dan Voicu



Dr. Flavia De Lima Alves



Victor Sit



Dr. Hagar Labouta



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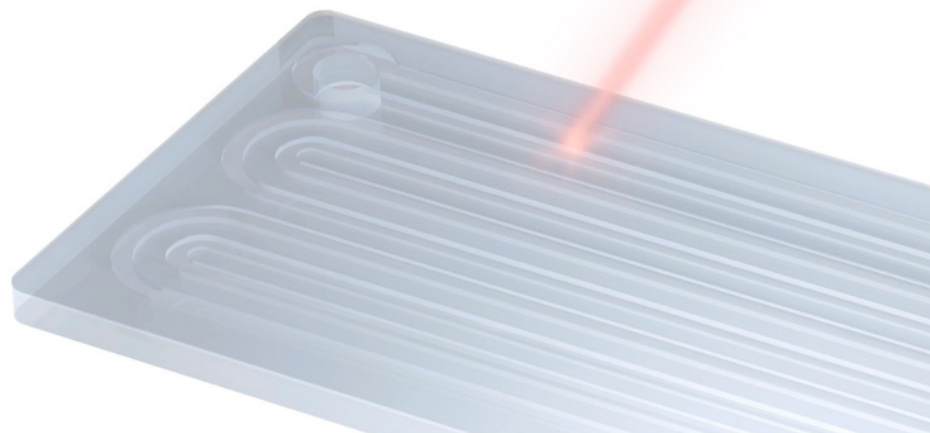
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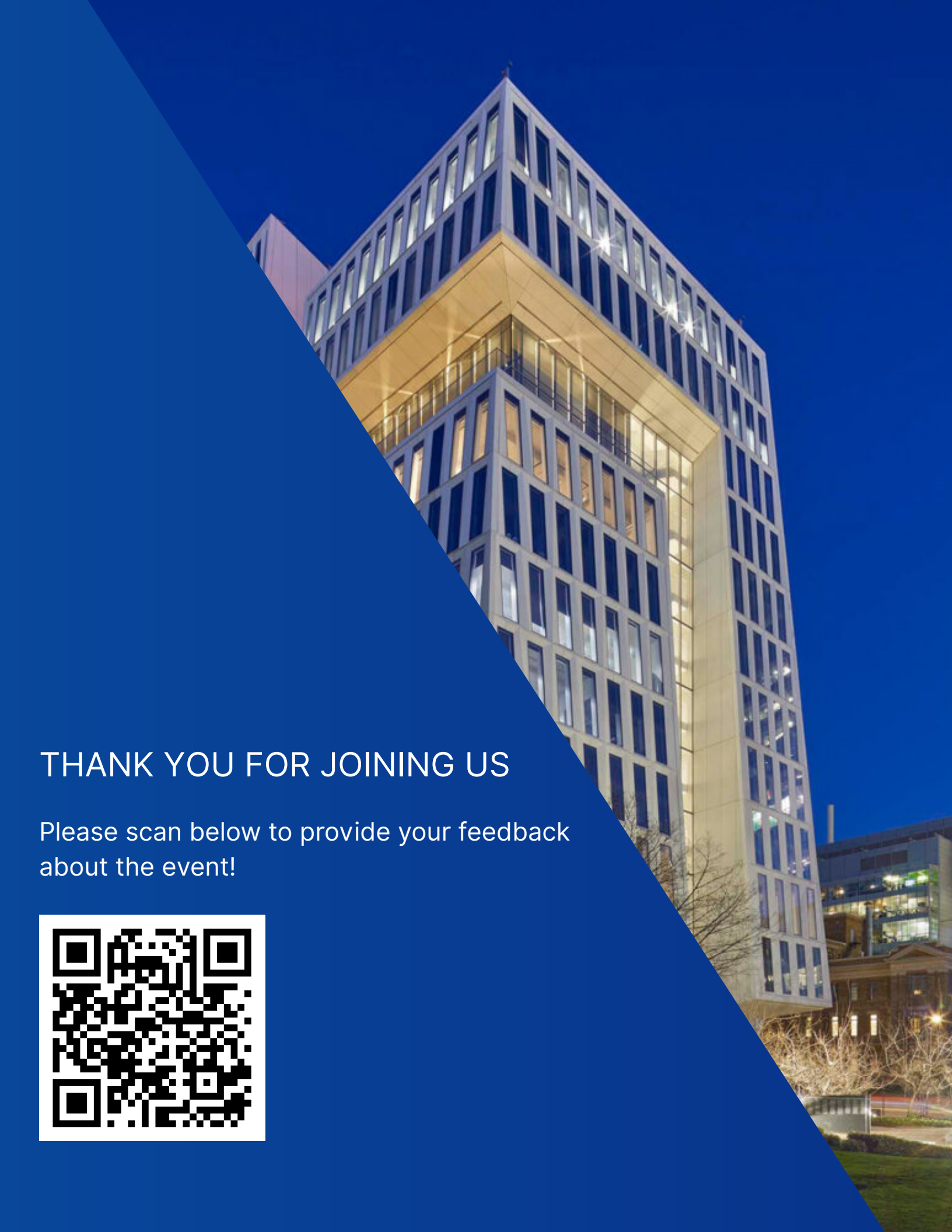
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