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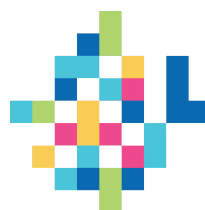
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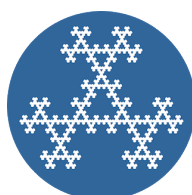
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Preface

The 26th annual Bridges conference at Dalhousie University in Halifax has been in the works for a very long time. The original bid in 2019 was intended for a meeting in summer of 2021, but as we all know, the COVID-19 pandemic caused much upheaval to many well laid plans. We are therefore extremely happy to (finally) welcome you all to Atlantic Canada for Bridges 2023!

This year's conference takes place in the vibrant port city of Halifax, the provincial capital of Nova Scotia. A major business center, it's also known for its maritime history. The city is dominated by the hilltop Citadel, a star-shaped fort completed in the 1850s. Waterfront warehouses, known as the Historic Properties, recall Halifax's days as a trading hub for privateers, notably during the War of 1812. Halifax is located on the ancestral and unceded territory of the Mi'kmaq people. The people of the Mi'kmaq Nation have lived on this territory for millennia, and we acknowledge them as the past, present and future caretakers of this land.

Two major supporters of this year's conference are AARMS (the Atlantic Association for Research in the Mathematical Sciences) and Dalhousie University's Faculty of Architecture and Planning. The mission of AARMS is to strengthen research and education in the mathematical sciences, with special focus on Atlantic Canada. AARMS fosters scientific collaborations, both within the Atlantic mathematical community, and with colleagues across Canada and beyond. AARMS provides outstanding educational opportunities in order to build expertise and attract talent to the region. In addition, AARMS supports initiatives that raise interest and competence in mathematics among the public in general, and school children in particular. Through its activities, AARMS aims to promote scholarly excellence, and to maintain a strong and vibrant mathematical research community in Atlantic Canada.

Students within Dalhousie's Faculty of Architecture and Planning benefit from learning in a collaborative environment with a strong hands-on approach from faculty members who are leaders in accessibility design, clean transportation, intelligent building material development, and designing a cleaner future. Located in Nova Scotia and surrounded by ocean with 3,000 miles of coastline, the Faculty of Architecture and Planning is located at the Sexton Campus which is in the downtown core of Halifax, Canada's second fastest growing city. Faculty resources available for student training include computer labs, digital media workshops, fabrication facilities, and a wood shop. These spaces provide innovative and immersive education experiences and foster vibrant co-op programming opportunities, which are amongst the most established in the country.

We extend our heartfelt thanks to our local chairs, Sanjeev Seahra and Eva Knoll, for their tireless work organizing Bridges Halifax. Thanks to their vision we will enjoy beautiful facilities on a lovely campus in a charming city.

In addition to the members of the local organizing committee listed above, we would like to sincerely thank Jason Brown, Axel Bulmer, Karl Dilcher, Graham Gagnon, Wendy Gentleman,

Jeannette Janssen, John Newhook, Dorette Pronk, Jayme Spinks and Daniele Turchetti for their invaluable help at various stages of conference planning and preparation. We must also express our gratitude to AARMS's sister mathematical institutes for their support of the conference: the Centre de Recherches Mathématiques (CRM), the Fields Institute, and the Pacific Institute for the Mathematical Sciences (PIMS). Finally, we are extremely appreciative of the efforts of Paul Carreiro in procuring the Halifax Central Library as the Family Day venue. We thank Shelby Kennedy and the library staff for hosting us in their beautiful building.

This year's Bridges program co-chairs are Judy Holdener and Eve Torrence. They coordinated an international program committee of over 80 experts, who provided extensive peer reviews and editorial comments on submissions. Judy and Eve also served as chairs of the Regular Papers track, while Chamberlain Fong chaired the Short Papers track, and Katherine Seaton chaired the Workshop Papers track. Special thanks to Math + Fashion co-chairs Uyen Ngugen and Susan Goldstine, Poetry Reading chair Sarah Glaz, Short Film Festival chair Bianca Violet, Theater Event co-chairs Steve Abbott and Colin Adams, Family Day chair Kristóf Fenyvesi, and Informal Music Night host Douglas Norton. Thank you to Jeffrey Ventrella for designing the aperiodic monotile inspired covers for the Proceedings and the Art Exhibition catalog and many thanks to Craig S. Kaplan for production of this Proceedings and the Bridges Archive.

The 2023 Bridges proceedings includes 7 invited papers, 43 regular papers, 48 short papers, and 8 workshop papers. These papers invite us to fly through hyperbolic space, explore fractals in four dimensions, fold symmetry groups, witness polyhedra and architectural structures self-assemble, and draw a curve with a toy car. We learn how beautiful patterns emerge through examining circle puzzles, sandpiles, vortical structures, and superpermutations. Statistics are used to draw silhouette illusions, music is created from text, and images are created from dice—in three directions! The breadth of knowledge and creativity of Bridges authors continues to be astounding. A huge thanks to all our Program Committee members, who each spent countless hours writing detailed reviews of papers. Without their hard work we would not be able to achieve the outstanding quality of this collection of papers.

An exhibition of mathematical art has been an annual feature of Bridges since 2001. Bridges has always interpreted mathematical art broadly to include all artifacts that express mathematical themes visually. Artists participate from around the world, representing diverse cultural backgrounds and showcasing a wide variety of artistic media, from painting to glasswork, textiles, paper folding, and geometric sculpture. Artists drew inspiration from the mathematics of fractals, map coloring, tiling, knots, circle packing, space-filling curves, and more. This year Robert Fathauer and Bruce Torrence served as co-curators of the exhibition. Kate McCallum and Rachel Quinlan served on the selection jury along with the curators. The art submission website and the online galleries, long a staple of the Bridges Conference, underwent a major overhaul for which we thank creator and administrator Nathan Selikoff. Conan Chadbourne prepared the Art Exhibition catalog, and Susanne Marshall served as the local coordinator for the exhibition.

This year we were able to offer five travel scholarships and 22 complimentary registrations to students to participate in Bridges. We are very grateful for donations supporting the Reza Sarhangi Travel Scholarship and Memorial Lecture Fund, which makes this program possible. This is a testament to the enduring legacy and generous spirit of Bridges founder Reza Sarhangi for creating an atmosphere of goodwill, sharing, and working together to further the study of mathematics and art.

As we begin our second quarter century of gathering to celebrate mathematics and the arts, the Bridges community has shown that our passion for sharing ideas continues to thrive. Reza would be very proud to see how we have used our combined creativity to continue to support and inspire each other through the difficult years of the pandemic. We have emerged as a resilient movement with great promise for the future.

The Bridges Organization Board of Directors and Bridges 2023 Chairs
www.bridgesmathart.org

