Bridges Pécs

Mathematics, Music, Art, Architecture, Culture

Conference Proceedings

2010

Celebrating the 13th Annual Bridges Conference in the City of Pécs
European Capital of Culture, Hungary

Bridges Pécs

Mathematics, Music, Art, Architecture, Culture

Bridges: Mathematical Connections in Art, Music, and Science

Pécs Cultural Centre

Pécs 2010 European Capital of Culture

Proceedings 2010

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Preface

Bridges 2010, in Pécs, Hungary promises to offer another exciting and inspiring installment of the annual series of math and art conferences that have been held since 1998. After visiting the USA (several times), Canada (twice), Spain (twice), Britain, and the Netherlands, we are very pleased to be in Eastern Europe for the first time, in the beautiful city of Pécs, Hungary. Pécs has long been a center of learning, as the home of the largest and oldest university in Hungary, dating back to 1367. The city has a long history of Roman, Ottoman, Turkish, and Hungarian culture since its founding in the early second century. Remains of its early history are recognized as a UNESCO World Heritage Site. For 2010, Pécs is being recognized by the European Union as a Capital City of Culture, and the Bridges Conference is proud to be part of this celebration of its cultural life and development.

Hungary is the home of many great mathematicians and artists who will be celebrated in various ways during the Bridges Conference. For example, the artist Victor Vasarely, the designer Marcel Breuer, and the mathematician János Bolyai will each be discussed in presentations during a special Hungarian Day at the conference. The inventor and professor of architecture Ernő Rubik will lead a special discussion about Rubik's Cube and other puzzles he has designed. And the international award winning Hungarian mathematician, László Lovász, will open the Bridges Conference with a plenary talk about the beauty of mathematics.

The Bridges Pécs conference has received enormous support from the Pécs Cultural Center. We thank its director Andrea Lakner Brückler and staff members, especially Kristóf Fenyvesi, for all the local arrangements they have organized. In preparation for the arrival of Bridges, they have been holding an annual art-math conference series, entitled Pécs – Ars GEometrica (PAGE), since 2007 and running a mathematics education program, entitled Experience Workshop, since 2008. In addition, we thank György Darvas for making many local arrangements and invitations.

Pécs is the home of the world famous Zsolnay Porcelain Manufactory, a center for historical and contemporary ceramics and porcelain. To celebrate the arrival of Bridges in Pécs, Dániel Erdély curated and organized the ScienTile Exhibition at the Zsolnay Cultural Center. A panel of judges reviewed and selected the entries. We would like to thank him, his jurors, Simon Erdély, András Fodor, and the Director of the Zsolnay Porcelain Manufactory, Péterné Marosy Katalin, for bringing this exhibition to reality.

The proceedings book has grown in both size and quality. For the first time in the history of Bridges, the number of accepted articles published in the proceedings has surpassed one hundred! This jump is due to an overall increase in the number of submitted articles. The program committee that oversaw the reviewing process spent many hours studying and discussing the articles, with input from an army of external reviewers. To limit the proceedings to a single volume, many submissions were restricted in length. Fortunately the EasyChair system worked well to streamline the process. We are grateful to the University of Manchester, England, for providing this service.

The growth of the community interested in mathematics and art and other connecting fields also shows itself in the large draw of the Art Exhibition, which this year hosts seventy-four artists from all over the world. This important component of the annual Bridges conference is a juried exhibition that is also captured in a marvelous catalog showing all selected works in color photographs. We are very grateful to Robert Fathauer along with Anne Burns, Nat Friedman, and István Orosz for organizing this event and for jurying the many submissions. We also thank Edith Kiss of the Pécs Cultural Center for helping with logistical challenges and the hanging of the exhibition in Pécs. We thank Ergun Akleman for designing

the Proceedings cover and Art Exhibition Catalog cover using artwork selected from the exhibition. Nathan Selikoff is especially thanked for creating a new online system for Exhibition submissions and automatic catalog generation, and for taking over general maintenance of the extensive Bridges website.

The conference also keeps growing in several other directions due to the creativity and special effort of many dedicated individuals. This is most visible in the special Bridges Nights program:

- For our Theater Night this year, the Bridges Conference will present The Secret Life of Squares. Karl Schaffer and Erik Stern, both college professors, along with company dancer Saki, show the connections among disciplines through their highly physical, engaging choreography using humor and entertaining audience interactions. Their art addresses symmetry, number sense, the history of ideas and, ultimately, how we think.
- Dmitri Tymoczko, a music professor at Princeton University, is the curator of Music Night, a public concert of accessible music inspired by mathematical themes. It will feature composers such as Fernando Benadon, Clifton Callender, Adrian Childs, and Noam Elkies. These new works will be presented in a concert performance with an explanatory introduction about their mathematical connections. We would like to thank the performers of the musical pieces, the Ávéd-Fenyvesi Quartet, the Handbell Choir of the ANK Primary SchooI of Pécs, and Katalin Gál Poór. We also thank Vi Hart for organizing a separate informal session of music by conference participants.
- More artists and educators than ever are using movies, videos, and animations for different purposes ranging from education, industry, and art. An important objective of the Bridges Organization is to introduce participants to innovative and integrative techniques that promote interdisciplinary work in the fields of mathematics and art. The Math/Art One-Night Film Fest is a new feature of the conference and a new venue for talented and creative minds around the world.

The authors, the artists, and others who come to learn and enjoy the conference through many venues of talks and exhibitions are visiting this year from about thirty different countries around the world. Many others who would have loved to, but could not attend, will still be reached by conference products such as the Proceedings, the Art Exhibition Catalog, and the Bridges website, http://bridgesmathart.org/. It records and documents many facets of this conference: the papers, the art work, and photographs taken by participants. Thus, in a virtual way, those who miss these exciting days in Pécs will still be connected and those who do attend can revisit their memories repeatedly.

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