BRIDGES TOWSON

Mathematics, Music, Art, Architecture, Culture

Art Exhibition Catalog

2012

PREFACE

Ten years after a successful Bridges Conference at Towson University in 2002, and after going around the world from Granada, Spain, to Banff, Canada (twice), to London, UK, to San Sebastián, Spain, to Leeuwarden, the Netherlands, to Pécs, Hungary, and to Coimbra, Portugal, Bridges returns to Towson in 2012. Towson University, one of the largest Universities in Maryland, is located in the Baltimore metropolitan area, one of the most visited cities in the US. Established in 1634, Baltimore has an interesting history and provides a rich backdrop for this diverse, interdisciplinary conference.

The International Bridges Conferences, created in 1998 and running annually since, have provided a remarkable model of how to integrate seemingly diverse disciplines such as mathematics and the arts. Here practicing mathematicians, scientists, artists, teachers, musicians, writers, computer scientists, sculptors, dancers, weavers, and model builders have come together in a lively and highly charged atmosphere of mutual exchange and encouragement.

The lasting record of each Bridges Conference is its Proceedings – a valuable and highly regarded resource book of the papers and the visual presentations of the meeting. For this year, the reviewing process was co-chaired by Bob Bosch, professor of Mathematics, Oberlin College, award-winning artist and author, and Douglas M. McKenna, award-winning software developer and mathematical artist and the President of Mathemaesthetics, Inc., Boulder, Colorado. Bosch and McKenna led a diverse program committee of forty experts from around the world in a rigorous review of papers in three categories: regular papers, short papers, and workshop papers. The program committee in turn obtained the assistance of additional expert reviewers. We thank all these many volunteers for their careful work, which made possible this volume you are holding. This is the first year that the program committee chairs have come from outside the Bridges Organization board, and we look forward to continuing and expanding this trend of widening the circle of leadership.

We are very happy to have a series of international figures as keynote speakers, including Nobel laureate John Mather; the president of the International Mathematics Union, Ingrid Daubechies; and renowned sculptors Helaman Ferguson and Brent Collins.

An exhibition of mathematical art has been an annual feature of Bridges since 2001, and it has grown steadily over the years under the dedicated leadership of Robert Fathauer. This year, because of the availability of the gallery spaces at Towson University, we have been able to put together what must be the largest exhibition of mathematical art ever, with one hundred ten artists included. Diverse artistic media are represented, including wood, metal, stone, ceramics, beadwork, and fabric, in addition to a variety of two-dimensional media. Christopher Bartlett, Anne Burns, and Nat Friedman joined Robert Fathauer on the jury. For this year, a portion of the exhibit is being shown as a one-month exhibition at the College of Fine Arts Gallery, curated by Christopher Bartlett.

The Bridges Organization website, including the art exhibition pages, is managed by Nathan Selikoff, who also created the full-color catalog documenting the art exhibition. Ergun Akleman continues his tradition of making an exciting cover for the Proceedings that highlights some of the artwork.

The conference includes many evening events, one of which is a musical concert organized by Dmitri Tymoczko, featuring a combination of new and old music: Bach puzzle canons, Tom Johnson's "Narayana's Cows" (almost a mathematics proof set to music), and three or four new premieres, including a memorial for one of the greatest mathematical musicians of all time. Diane Luchese coordinates the local performers. There is also an informal music night in which conference participants display their musical talents, organized by Vi Hart.

As always, the conference includes an Excursion Day, with a trip to local sites of interest. This year, the excursion features a visit to the Walters Art Museum, which houses the Archimedes Palimpsest. Will Noel, Archimedes Project Director and Walters Curator of Manuscripts and Rare Books, gives a special lecture on this unique mathematical document. At the Baltimore Museum of Art, participants explore the internationally renowned 90,000-work collection. At Fort McHenry, the birthplace of the "Star-Spangled Banner," William Duffy, who recently created a sculpture there of Francis Scott Key, presents a short talk and visitors can tour the fort. After these three stops, participants visit The American Visionary Art Museum, The Maryland Science Center, or the Baltimore Inner Harbor.

For Family Day, the larger community is invited to join conference participants in a celebration of mathematical ideas with a special emphasis on topics appropriate for a younger audience. The day includes the Third Annual Bridges Short Movie Festival, which will feature a variety of juried and curated videos and short films that have been created for educational and artistic purposes. Family Day also includes a Math/Poetry event featuring works from traditional to multimedia and from lyrical to visual, in which ten poets will read selections from their work. An Experimental Theater event provides a spirited, engaging theater performance that is as rewarding to the audience as it is to the conference participants who volunteer as actors. Family day concludes with a special Mime-Matics Night in which Tim and Tanya Chartier present a mime performance conveying mathematical ideas.

The Bridges Organization
bridgesmathart.org
Board of Directors: George Hart, Craig Kaplan,
Reza Sarhangi, Carlo Séquin

BARTNECK ET AL.

CONTACT

Christoph Bartneck, Jun Hu, Loe Feijs (teachers), Rick van de Westelaken, Wouter Kersteman, Thomas van Lankveld (students).
Professor of Industrial Design + colleagues + students
Industrial Design Department, Technical University of Eindhoven
Eindhoven, The Netherlands

l.m.g.feijs@tue.nl

Man-shaped figures by Thomas van Lankveld
60 x 60 x0.5cm
laser cut wood
2011

The art works proposed are examples of results of a yearly workshop for industrial design students at TU/e. The workshop serves to teach mathematical principles to design students. The students defined tessellations in mathematical formulas, using the Mathematica software. But we do not stop at a digital representation of their tessellation design, we continue to cut their tessellations in Perspex (using vector graphics output from Mathematica). It moves the abstract concepts of math into the real world, so that the students can experience them directly, which provides a tremendous reward to the students. The pedagogics of the approach has already been described in [Bartneck, Feijs, 2009]. Now we selected three of the most interesting works for the exhibition. Two are in Perspex where pieces of different colours have been glued together. The third work also includes wood. In our opinion the works are visually interesting and the material qualities add to the overall aesthetics.
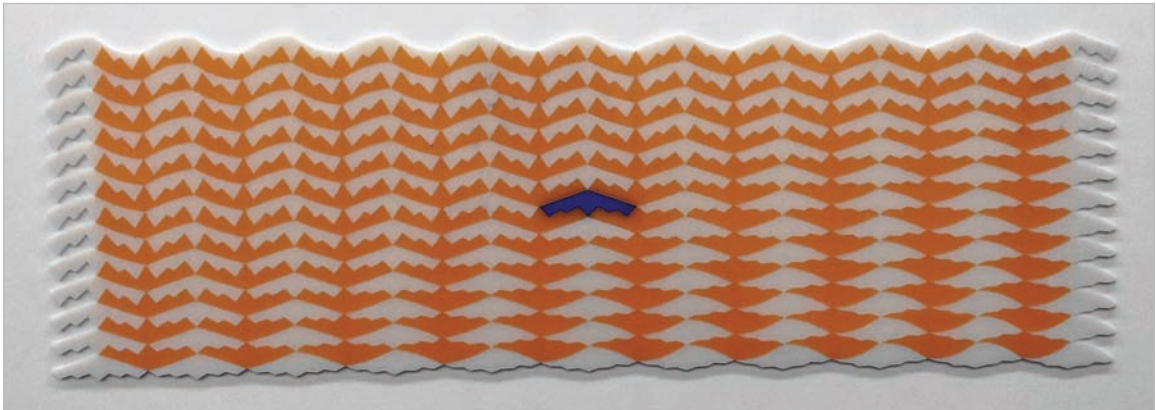
Man-shaped figures · Circular TTTTTT configuration of man-shaped figures by Thomas van Lankveld.

Skunks · Tesselation of Skunks by Wouter Kersteman.

Stealth · Gradually changing tesselation of stealth like figures by Rick van de Westelaken.
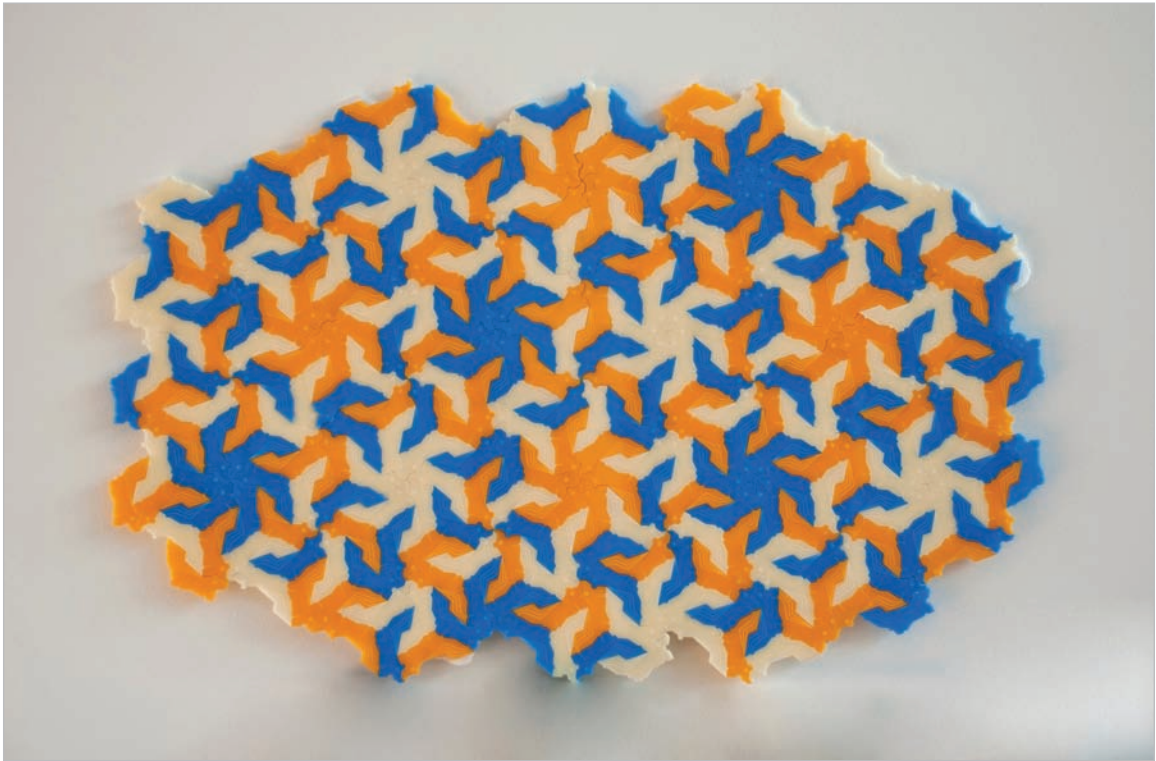
Skunks by Wouter Kersteman
58 x 36 x 0.6cm
coloured perspex, laser cut, foamboard background
2008

Stealth by Rick van de Westelaken
60 x 23 x 0.6cm
coloured perspex, laser cut, foamboard background
2008