

Hyperseeing

Ergun Akleman and Nat Friedman

The International Society of the Arts, Mathematics, and Architecture (ISAMA) was founded by Nat Friedman in 1998. It was a natural outgrowth of an annual series of Art and Mathematics Conferences held at the University at Albany-SUNY from 1992 through 1997, then at Berkeley in 1998. There were six conferences about art and mathematics during the summer of 1998!

The purpose of ISAMA is to develop interdisciplinary education relating the arts, mathematics, and architecture. It is important to learn to see from multiple viewpoints. One can see a sculpture from multiple viewpoints by walking around it. One can also see mathematical ideas from the viewpoint of art, as well as see art from the viewpoint of mathematics. Hyperseeing is defined as seeing from multiple viewpoints in a very general sense.

Hyperseeing is also the name of the bimonthly publication of ISAMA. It is a free, electronic, full-color



Keizo Ushio, *Oushi Zokei Bondi* 2007, Japanese black granite, 170 x 130 x 80.



Max Bill, *Endless Ribbon*, Granite, 150 x 110 x 120 cm. Pompidou Center, Paris.

publication edited by Nat Friedman and Ergun Akleman that can be seen at <http://www.isama.org/hyperseeing/>. The purpose of *Hyperseeing* is to highlight artworks that are related either implicitly or explicitly to mathematics. The emphasis is on visualization with full-color images. Although color copies can be downloaded free, high-quality glossy paper copies can be ordered individually from <http://www.lulu.com>. A detailed discussion of hyperseeing is presented in the first issue, September 2006.

Mathematical art can be described simply as art that is generated by a mathematical concept. For example, many sculptures have been generated from the concept of a Möbius band. For mathematicians, there are essentially just two Möbius bands, depending on whether the half-twist is right or left. They are interested in the non-orientability of the Möbius band and in the fact that the right and left bands are distinct in the sense that one cannot be deformed into the other. Sculptors are interested in the variety of interesting shapes that are suggested by the twisted band. For sculptors, there are infinitely many Möbius bands of various shapes and dimensions and made of various materials. The Möbius band *Endless Ribbon* by the Swiss sculptor Max Bill (1908–1994) is granite. Max Bill also made Möbius bands out of brass, copper, and bronze. A variety of Möbius band sculptures by Larry Frazier are discussed in the August 2007 issue of *Hyperseeing*.

It is well known that a Möbius band can be cut in half and will remain a single two-sided band twice as long as the original band. Japanese sculptor Keizo Ushio has adapted this result to carve a series of divided granite bands, such as *Oushi Zokei Bondi*. Keizo Ushio's works are discussed in several issues of *Hyperseeing*.



Arabesque 29, by Robert Longhurst, is based on the Enneper surface. Nat Friedman had visited David and James Hoffman at the University of Massachusetts, and they had kindly allowed him to take photographs of computer-generated images of minimal surfaces. In particular, there were images of an Enneper surface, which Friedman later showed to Robert Longhurst. This led to *Arabesque 29*. The interesting point is that Longhurst mounted the sculpture on a thickened edge rather than presenting the Enneper surface in its standard position. This resulted in a more striking sculpture with surprisingly diverse images from multiple viewpoints, as discussed in recent issues of *Hyperseeing*.

The next ISAMA conference is planned for June 22–25, 2009 in Albany, NY. Visit <http://www.isama.org> for more information on this and many other resources related to mathematics and art. 🌐

Robert Longhurst, Arabesque 29, Bubinga, 12 x 10 1/2 x 9 1/2 in.

A New Schedule for MAA FOCUS

Fernando Q. Gouvêa

In difficult economic times, we all need to cut back a little. It's the same way with the MAA. For 2009, we plan to have only six issues of *MAA FOCUS*: January, which you are now reading, and then issues dated February/March, April/May, August/September, October/November, and December/January. Each issue will be slightly larger to allow us to provide almost as much content as before. Many of the more time-critical items, however, will be either placed online or included in the MAA's monthly *Math Alert* emails. One bonus is that we can help reduce our carbon footprint by saving on printing and shipping.

The new schedule will, of course, require corresponding changes in due dates for articles and news items. Please see page 11 for that information.

As always, we count on your support, your contributions, and your comments.

Fernando Q. Gouvêa is the editor of MAA FOCUS. He can be reached by email at fqgouvea@colby.edu.

MAA Financial Information

The MAA invites all members to become familiar with the financial health of the association. Members can log in to reach the MAA Treasurer's Page (at <http://www.maa.org/treasurer/>) to access current and longer-term financial information about the MAA. The information includes:

1. audited balance sheets for the last three years;
2. pie charts for revenue and expenses;
3. the MAA's investment policy statement;
4. investment fund monthly balances;
5. a list of named funds with a brief statement of each fund's purpose;
6. graphs showing total net assets (1998-2007) and historical income and expense data (1997-2006).

The information is updated each year after the annual audit, usually in May or June.

John W. Kenelly, MAA Treasurer