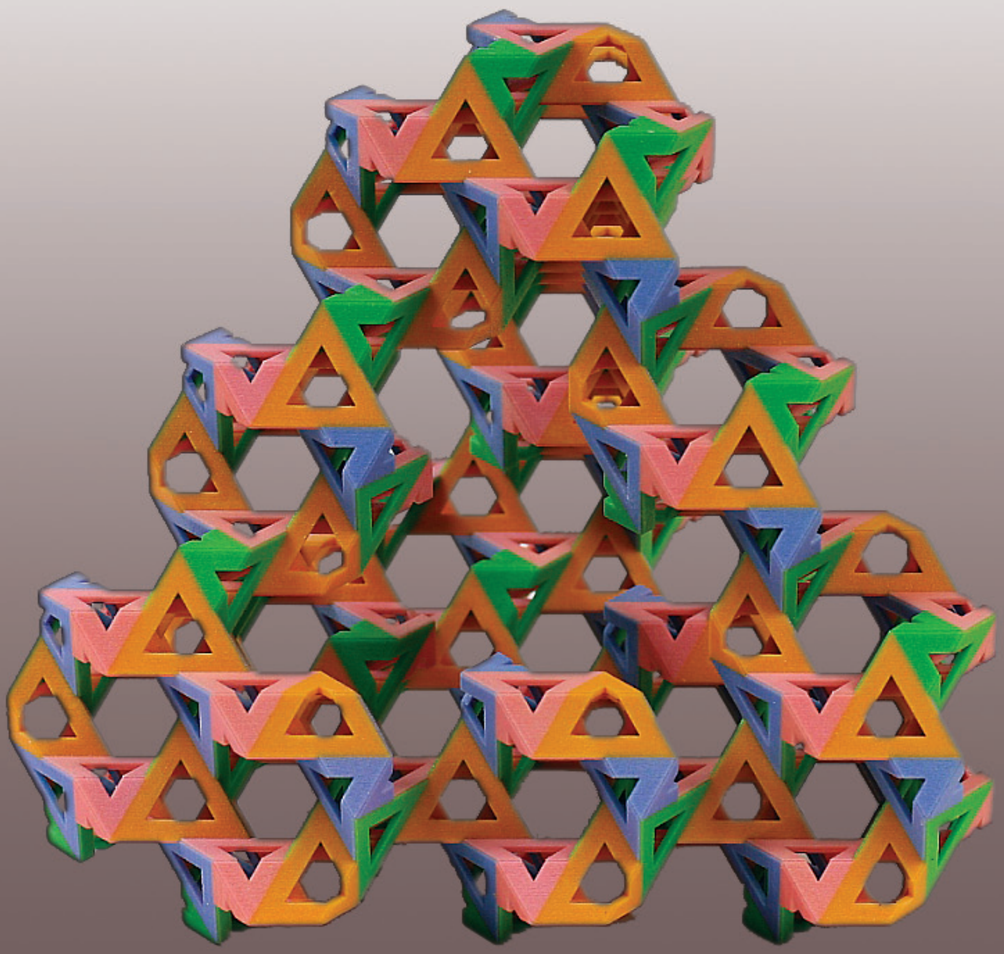
The American Mathematical Society

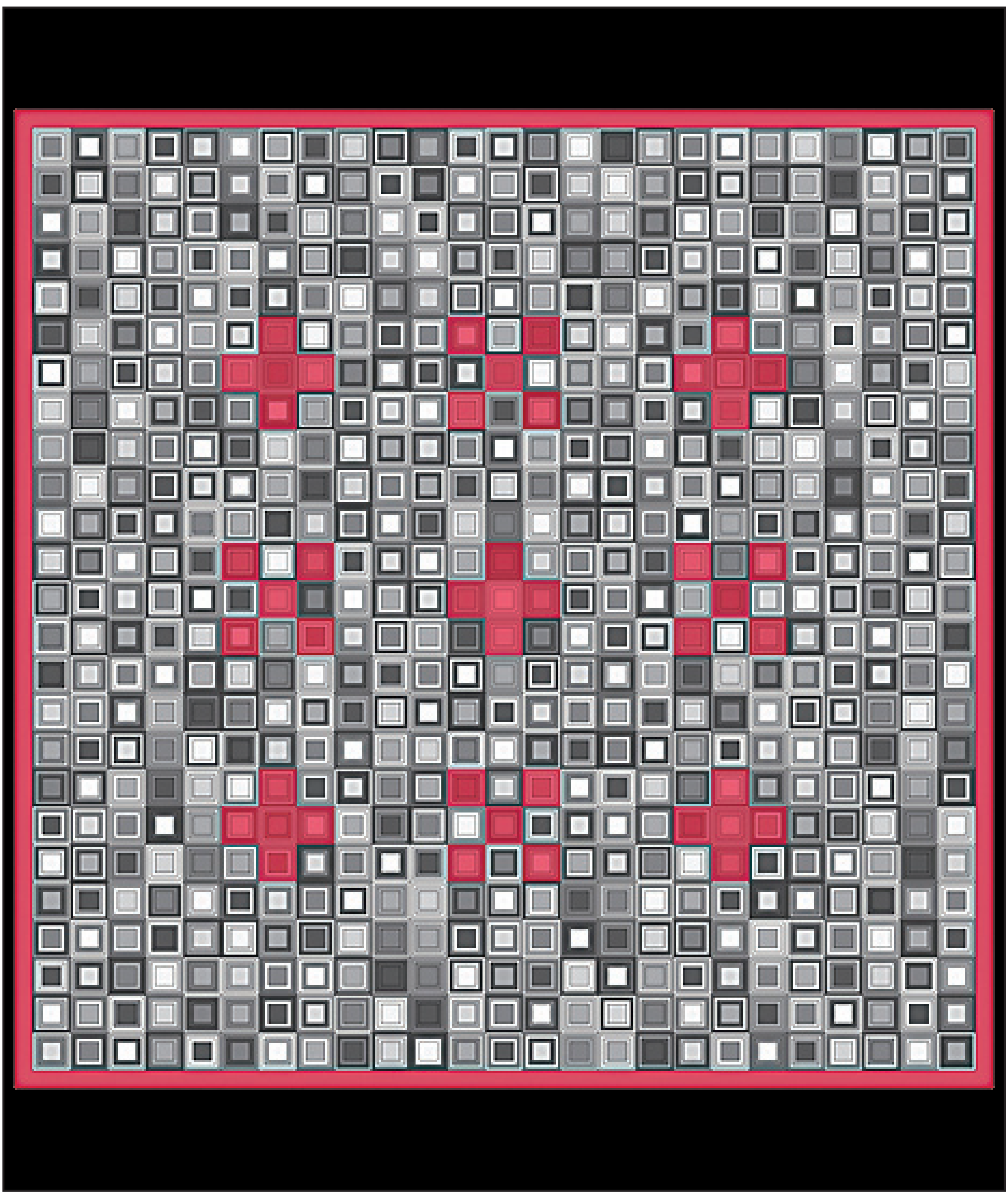
Calendar of Mathematical Imagery



"Gyrangle," by George W. Hart (**www.georgehart.com**).
(*see April 2012*)

2012

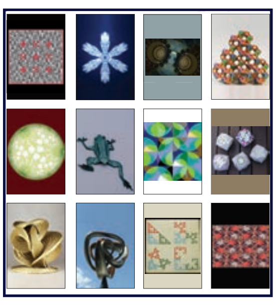
AMS
American Mathematical Society
www.ams.org



"Magic Square 25 Study," by Margaret Kepner (Washington, DC)

First Place Award, 2011 Mathematical Art Exhibition

Archival inkjet print, 12.5" x 12.5", 2010. Magic squares are numerical arrays that have substructures with constant sums. This design is based on a magic square of order 25, containing the numbers from 0 to 624. Each row, column, and main diagonal sums to the "magic constant" of 7800. The numbers in the magic square are represented by a visual base-5 system: four concentric squares serve as the 1, 5, 25, and 125 places, while shades of grey stand for the numerals 0 to 4. Coding the numbers into their base-5 versions yields a pattern of 625 unique, nested-squares in shades of grey. This particular magic square also has a substructure of 25 mini-squares of size 5. Each of these mini-squares is "magic" (although the numbers are not consecutive), with rows, columns, and diagonals summing to 1560. In addition, certain other groups of 5 squares add up to 1560. Examples are the quincunx and the plus-sign shapes (when fully contained in a mini-square). The colored accents are used to indicate a few of these "magic" substructures. —*Margaret Kepner*



THIS MATHEMATICAL MONTH

Monthly postings of vignettes on people, publications, and mathematics to inform and entertain, at **www.ams.org/thismathmonth/**.

JANUARY 2012

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 New Year's Day	2	3	4 Isaac Newton (1643) Joint Mathematics Meetings, Boston, MA	5 Joint Mathematics Meetings, Boston, MA	6 Joint Mathematics Meetings, Boston, MA	7 Joint Mathematics Meetings, Boston, MA
8	9	10	11	12	13	14
15	16 Martin Luther King, Jr. Day (U.S.)	17	18	19	20	21
22	23 David Hilbert (1862)	24	25 Joseph Louis Lagrange (1736)	26	27	28
29	30	31				

Joint Mathematics Meetings

4–7: Joint Mathematics Meetings, Boston, MA

AMS
AMERICAN MATHEMATICAL SOCIETY
www.ams.org

DECEMBER 2011

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

FEBRUARY 2012

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

"Snowflake Model 5," by David Griffeath (University of Wisconsin-Madison) and Janko Gravner (University of California, Davis)

In nature roughly a quintillion molecules make up every crystal that falls to earth, with the shape dictated by temperature, humidity and other local conditions. How such a seemingly random process produces snowflakes that are at once geometrically simple and incredibly intricate has captivated scientists since the early 1600s. Now we have simulated their 3D growth using a computational model that faithfully emulates both the basic shapes and the fine details and markings of the full range of observed forms. Our model is driven by diffusion-limited attachment of micron-scale blocks of ice; read about the underlying mathematics at **http://psoup.math.wisc.edu/Snowfakes.htm**. —*David Griffeath*

FEBRUARY 2012

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20 Presidents' Day (U.S.)	21	22	23	24	25
26	27	28	29			

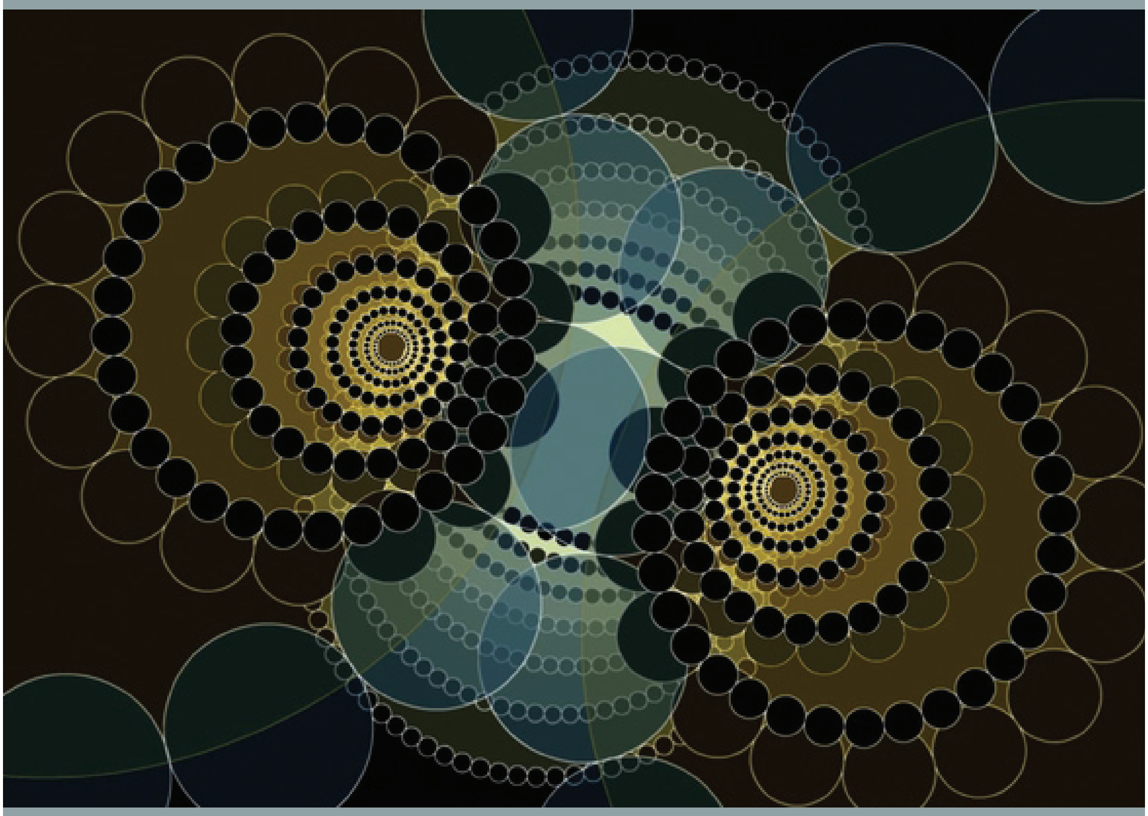
AMS
American Mathematical Society
www.ams.org

JANUARY 2012

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

MARCH 2012

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



"Circles on Orthogonal Circles," by Anne Burns (Long Island University, Brookville, NY)
Third Place Award, 2011 Mathematical Art Exhibition

Digital print, 12" x 16", 2010. A loxodromic Möbius transformation has two fixed points, one attracting and the other repelling. Starting with a small circle around the repelling fixed point, and repeatedly applying the Möbius transformation, results in a family of circles that grow at first, each containing the previous one. Successive images eventually pass over the perpendicular bisector of the line connecting the fixed points and shrink as they are attracted to the other fixed point. Each circle in a second family of circles passes through the fixed points and is mapped to another circle in that family. Each circle in the second family is orthogonal to every circle in the first family. —*Anne Burns* **(http://www.anneburns.net)**

MARCH 2012

AMS Sectional Meetings
3–4: University of Hawaii, Honolulu (Western)
10–11: University of South Florida, Tampa (Southeastern)
17–18: George Washington University, Washington, DC (Eastern)
30–April 1: University of Kansas, Lawrence (Central)

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2	3 AMS Sectional Meeting
4 AMS Sectional Meeting	5	6	7	8	9	10 AMS Sectional Meeting
11 AMS Sectional Meeting	12	13	14 Pi Day	15	16	17 AMS Sectional Meeting
18 AMS Sectional Meeting	19	20	21	22	23 Emmy Noether (1882)	24
25	26	27	28	29	30 AMS Sectional Meeting	31 René Descartes (1596) AMS Sectional Meeting

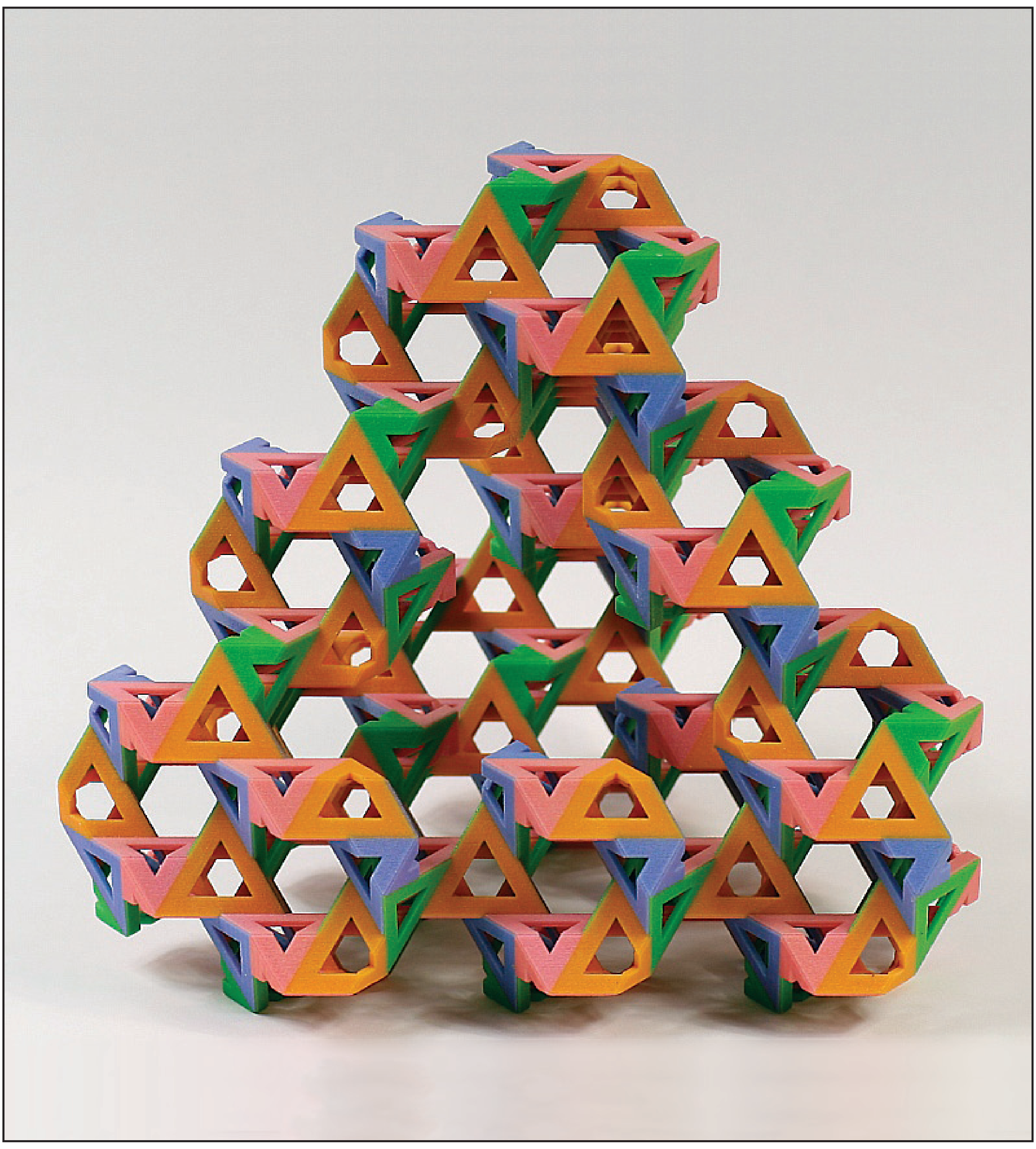
AMS
American Mathematical Society
www.ams.org

FEBRUARY 2012

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

APRIL 2012

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					



"Gyrangle," by George W. Hart (**www.georgehart.com**)

The sculpture is constructed from almost 500 laser-cut steel units, bolted together in a novel way that produces a gyroid surface entirely from equilateral triangles. Shapes come together to reveal a variety of different patterns in the "tunnels" of the sculpture. The first presentation of this interesting geometry was at the USA Science and Engineering Festival in Washington DC, October 2010. The completed 42" sculpture was donated to Towson University. The work is described in detail at **www.georgehart.com/DC**.
—*George Hart*

Visit the AMS booth at the 2012 USA Science & Engineering Festival in Washington DC, April 27-29.

MAM 2012

MATHEMATICS AWARENESS MONTH is held each year in April to increase public understanding of mathematics. See **www.mathaware.org** to read the 2012 theme essay, download the poster, and view the related activities of math departments.

APRIL 2012

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 AMS Sectional Meeting	2	3	4	5	6	7 Passover begins
8 Easter	9	10	11	12	13	14
15 Leonhard Euler (1707)	16	17	18	19	20	21
22	23	24	25	26	27	28
29 Henri Poincaré (1854)	30 Carl Friedrich Gauss (1777)				**AMS Sectional Meetings** March 30–April 1: University of Kansas, Lawrence (Central)	

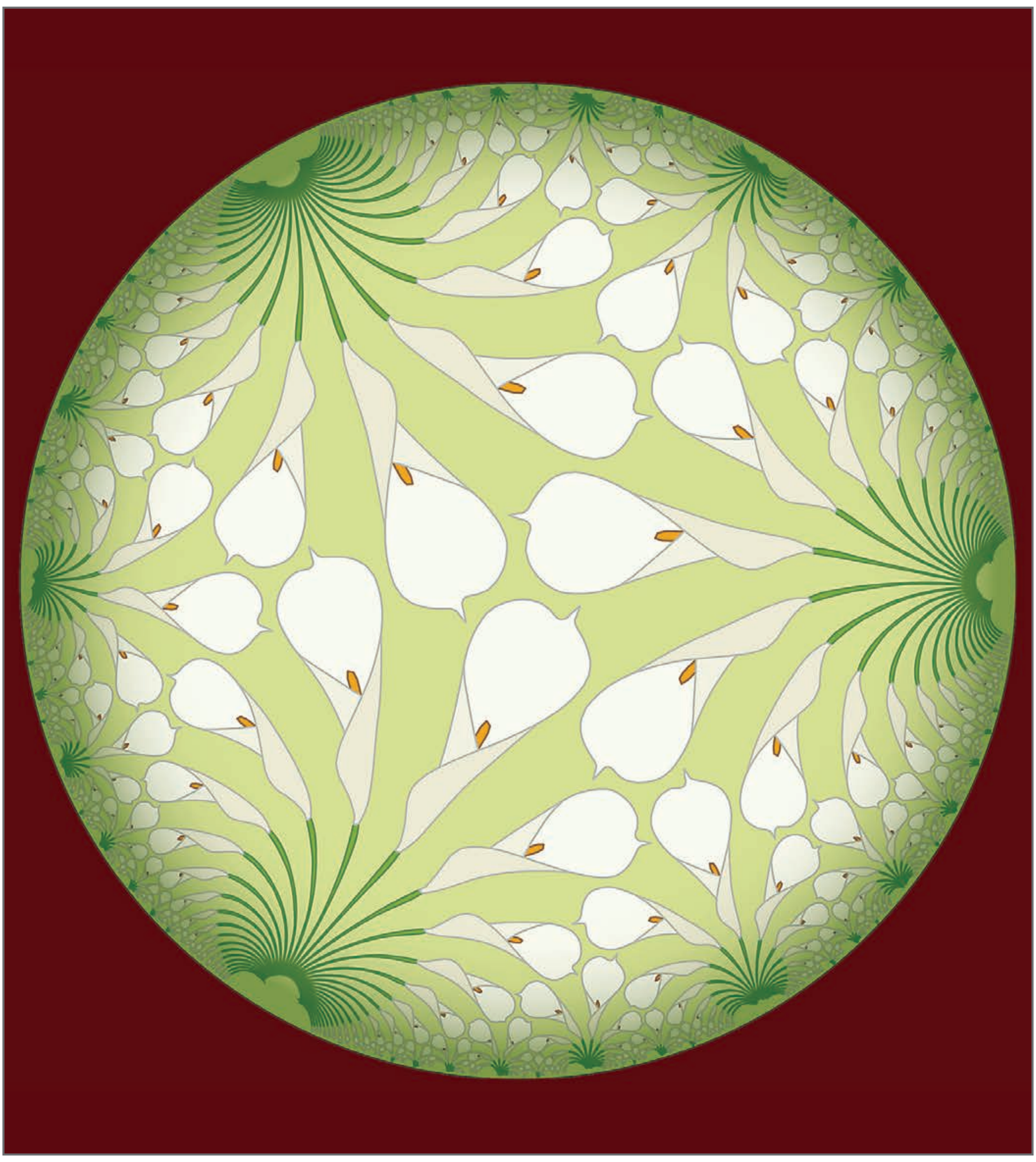
MARCH 2012

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

MAY 2012

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

AMS
American Mathematical Society
www.ams.org



“Calla Lily 32 infinity,” by Chaim Goodman-Strauss (University of Arkansas) (**http://mathbun.com/main.php**)

The group SL_2(Z) acts on the hyperbolic plane discretely, producing patterns of symmetry type 23 infinity, such as the one shown here. Similarly, the 2-fold cover GL_2(Z) acts with symmetry type *23 infinity. This image is from “The Symmetries of Things”, by John H. Conway, Heidi Burgiel and Chaim Goodman-Strauss (AK Peters, 2008). — *Chaim Goodman-Strauss*

MAY 2012

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21 Victoria Day (Canada)	22	23	24	25	26
27	28 Memorial Day (U.S.)	29	30	31		

AMERICAN MATHEMATICAL SOCIETY

www.ams.org

APRIL 2012

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

JUNE 2012

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

"Tree Frog, opus 280," by Robert J. Lang. Photograph by Robert J. Lang

Medium: One uncut square of Origamido paper, composed in 1993, folded in 2005, 5". The intersections between origami, mathematics, and science occur at many levels and include many fields of the latter. Origami, like music, also permits both composition and performance as expressions of the art. Over the past 35 years, I have developed over 480 original origami compositions. About a quarter of these have been published with folding instructions, which, in origami, serve the same purpose that a musical score does: it provides a guide to the performer (in origami, the folder) while allowing the performer to express his or her own personality through interpretation and variation. —*Robert J. Lang*

JUNE 2012

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Mathematics Research Communities, Snowbird, UT See conferences and dates at *www.ams.org/programs/research-communities/mrc*					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19 Blaise Pascal (1623)	20	21	22	23
24	25	26	27	28	29	30

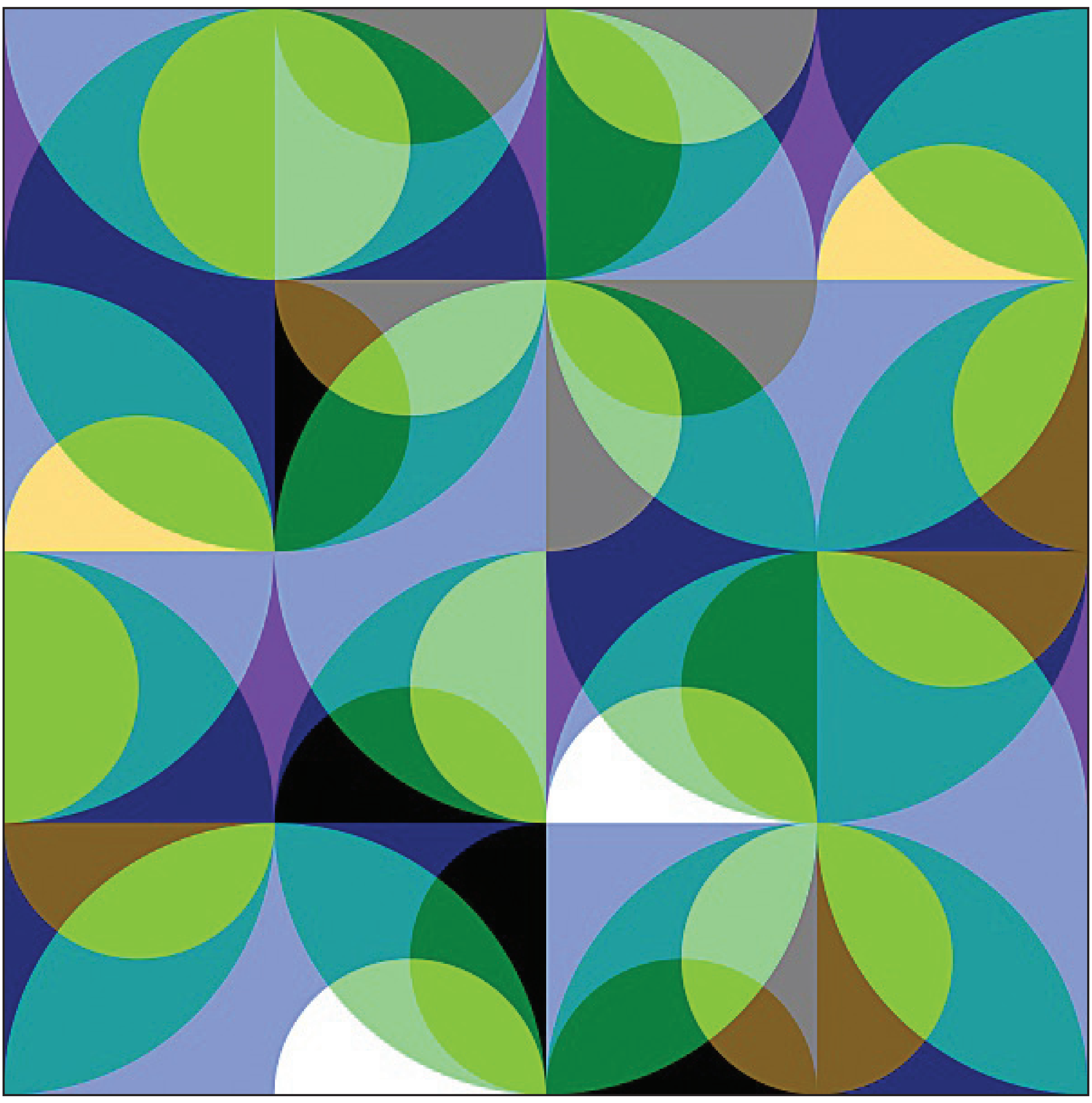
MAY 2012

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

JULY 2012

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

AMS
AMERICAN MATHEMATICAL SOCIETY
www.ams.org



"Sudoku 4B," by Kerry Mitchell (Phoenix College, Phoenix, AZ)

Photographic print, 17" wide x 17" high, 2007. In this image, I brought the notion of a Sudoku puzzle to a 4 x 4 grid, where I used shapes instead of the digits 1 - 4. I retained the requirement that each element of the four-character alphabet appear once and only once in each row, column, and in each of the four 2 x 2 sub-grids. In addition, I added an element of layering: Each finished image is a composition of four layers, with each layer being its own solved Sudoku grid. "My work is composed primarily of computer generated, mathematically-inspired, abstract images. I draw from the areas of geometry, fractals, numerical analysis, and physics, and combine these ideas with image-processing technology. An overriding theme that encompasses my work is the wondrous beauty and complexity that flows from a few, relatively simple, rules. Inherent in this process are feedback and connectivity; these are the elements that generate the patterns. They also demonstrate to me that mathematics is, in many cases, a metaphor for the beauty and complexity in life. This is what I try to capture." —*Kerry Mitchell* (**http://kerrymitchellart.com**)

JULY 2012

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 Gottfried Wilhelm Leibniz (1646)	2	3	4 Independence Day (U.S.)	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

JUNE 2012

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

AUGUST 2012

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

"Cuboctahedral Symmetries to Travel," by S. Louise Gould (Connecticut State University, New Britain)

Original digitized machine stitched patterns on cotton reinforced by Timtex, Five moveable pieces, collapsible each 3" × 3" × 3", 2009. Conway enumerates the 7 spherical symmetries compatible with the uniform polyhedra in "The Symmetries of Things." Using the symmetry types these are 332, *332, 432, 3*2, *432, 532 and *532. The simple cuboctahedron exhibits the first 5 of the symmetry patterns: *432 has 48 symmetries (the full group of symmetries), *332, 432 and 3*2 have 24 (the three subgroups of index 2=48/24) while 332 has only 12 (the ones of index 4=48/12). Coloring the faces of the models for the Archimedean solids is a natural extension of my recent work with pop-up polyhedra. "My mathematical art grows out of my experiences with my students and my explorations of mathematics, textiles, paper, and technology. I enjoy working with computer controlled machines such as the computerized embroidery sewing machine and the Craft Robo (plotter cutter) as well as traditional looms and knitting machines."
—S. Louise Gould

The AMS sponsors and cosponsors several EMPLOYMENT SERVICES. The Mathematical Sciences Employment Center, held each January at the Joint Mathematics Meetings, is an interviewing program for Ph.D.-level mathematicians seeking employment and for employers, mainly academic, who wish to conduct brief interviews with them. MathJobs is an automated job application system. Employment Information in the Mathematical Sciences (EIMS) posts classified ads. See all the services at **www.ams.org/employment**.

AUGUST 2012

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17 Pierre de Fermat (1601)	18
19	20 Ramadan begins	21 Augustin Louis Cauchy (1789)	22	23	24	25
26	27	28	29	30	31	

JULY 2012

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

SEPTEMBER 2012

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

"Natural Cycles," by Erik and Martin Demaine (Massachusetts Institute of Technology, Cambridge, MA)

Elephant hide paper, 9" × 9" × 9", 2009. The sculpture is a modular combination of three interacting pieces. Each piece is folded by hand from a circle of paper, using a compass to score the creases and cut out a central hole.This transformation of flat paper into swirling surfaces creates sculpture that feels alive. Paper folds itself into a natural equilibrium form depending on its creases. These equilibria are poorly understood, especially for curved creases. We are exploring what shapes are possible in this genre of self-folding origami, with applications to deployable structures, manufacturing, and self-assembly. "We explore many mediums, from sculpture to performance art, video, and magic. In our artwork we look for epiphanies, challenges, and often connections and understanding to help solve problems in mathematics." —*Erik Demaine* (**http://erikdemaine.org/curved/NaturalCycles/**)

MATHEMATICAL MOMENTS is a program that promotes appreciation and understanding of the role mathematics plays in science, nature, technology, and human culture. There are over 90 posters on topics in applied mathematics, some including podcasts of interviews with experts in the fields. Several are translated into Spanish, German, French, Chinese, Japanese, Russian, Arabic, Greek, Hebrew, Portuguese, and Polish. See the entire collection at **www.ams.org/mathmoments**.

SEPTEMBER 2012

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
AMS Sectional Meetings 22–23: Rochester Institute of Technology, Rochester, NY (Eastern)						1
2	3 Labor Day (U.S.)	4	5	6	7	8
9	10	11	12	13	14	15
16	17 Rosh Hashanah begins; Bernhard Riemann (1826)	18	19	20	21	22 AMS Sectional Meeting
23 AMS Sectional Meeting / 30	24	25 Yom Kippur begins	26	27	28	29

AMERICAN MATHEMATICAL SOCIETY
www.ams.org

AUGUST 2012

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

OCTOBER 2012

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

"Torus Knot (5,3)," by Carlo H. Séquin (University of California, Berkeley)
Second Place Award, 2011 Mathematical Art Exhibition

Bronze with silver patina, 10" × 8" × 16", 2010. Torus knots of type (p,q) are simple knots that wind around an invisible donut in a regular manner – p times around the hole, and q times through the hole. By using a somewhat more angular shape for the donut and a variable-size, crescent-shaped cross section for the ribbon, this mathematical construct can be turned into a constructivist sculpture. The challenge was to find a way to make a mold for casting this highly intertwined structure. The solution was to cast three identical pieces, which were then threaded together and welded to each other. —*Carlo H. Séquin* (**http://www.cs.berkeley.edu/~sequin/**)

OCTOBER 2012

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6
7	8 Columbus Day (U.S.)	9	10	11	12	13 AMS Sectional Meeting
14 AMS Sectional Meeting	15	16	17	18	19	20 AMS Sectional Meeting
21 AMS Sectional Meeting	22	23	24	25 Évariste Galois (1811)	26	27 AMS Sectional Meeting
28 AMS Sectional Meeting	29	30	31			

AMS Sectional Meetings
13–14: Tulane University, New Orleans, LA (Southeastern)
20-21: University of Akron, OH (Central)
27-28: University of Arizona, Tucson (Western)

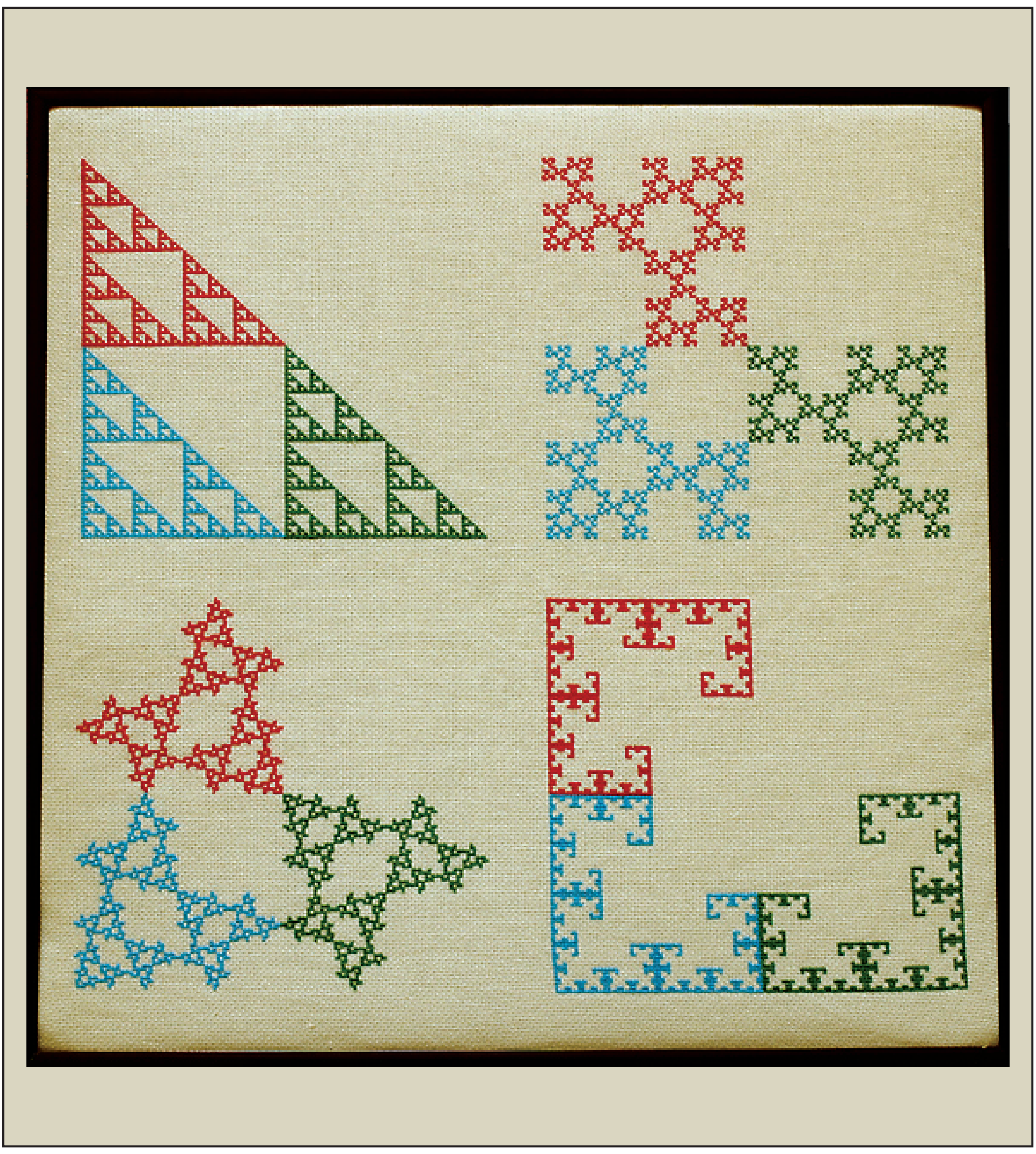
AMS
American Mathematical Society
www.ams.org

SEPTEMBER 2012

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

NOVEMBER 2012

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	



"Sierpinski Theme and Variations," by Larry Riddle (Agnes Scott College, Decatur, GA)

Counted cross stitch on fabric (25 count per inch), 13.5" x 13.5", 2009. The Sierpinski Triangle is a fractal that can be generated by dividing a square into four equal subsquares, removing the upper right subsquare, and then iterating the construction on each of the three remaining subsquares. That is our "Theme", shown in the upper left. The "Variations" arise by exploiting symmetries of the square. The three variations in this piece were generated by rotating the upper left and lower right subsquares at each iteration by 90 or 180 degrees, either clockwise or counterclockwise. The self-similarity of the fractals, illustrated by the use of three colors, means that you can read off which rotations were used from the final image. Each design shows the construction through seven iterations, the limit that could be obtained for the size of canvas used. —*Larry Riddle* (**http://ecademy.agnesscott.edu/~lriddle/**)

NOVEMBER 2012

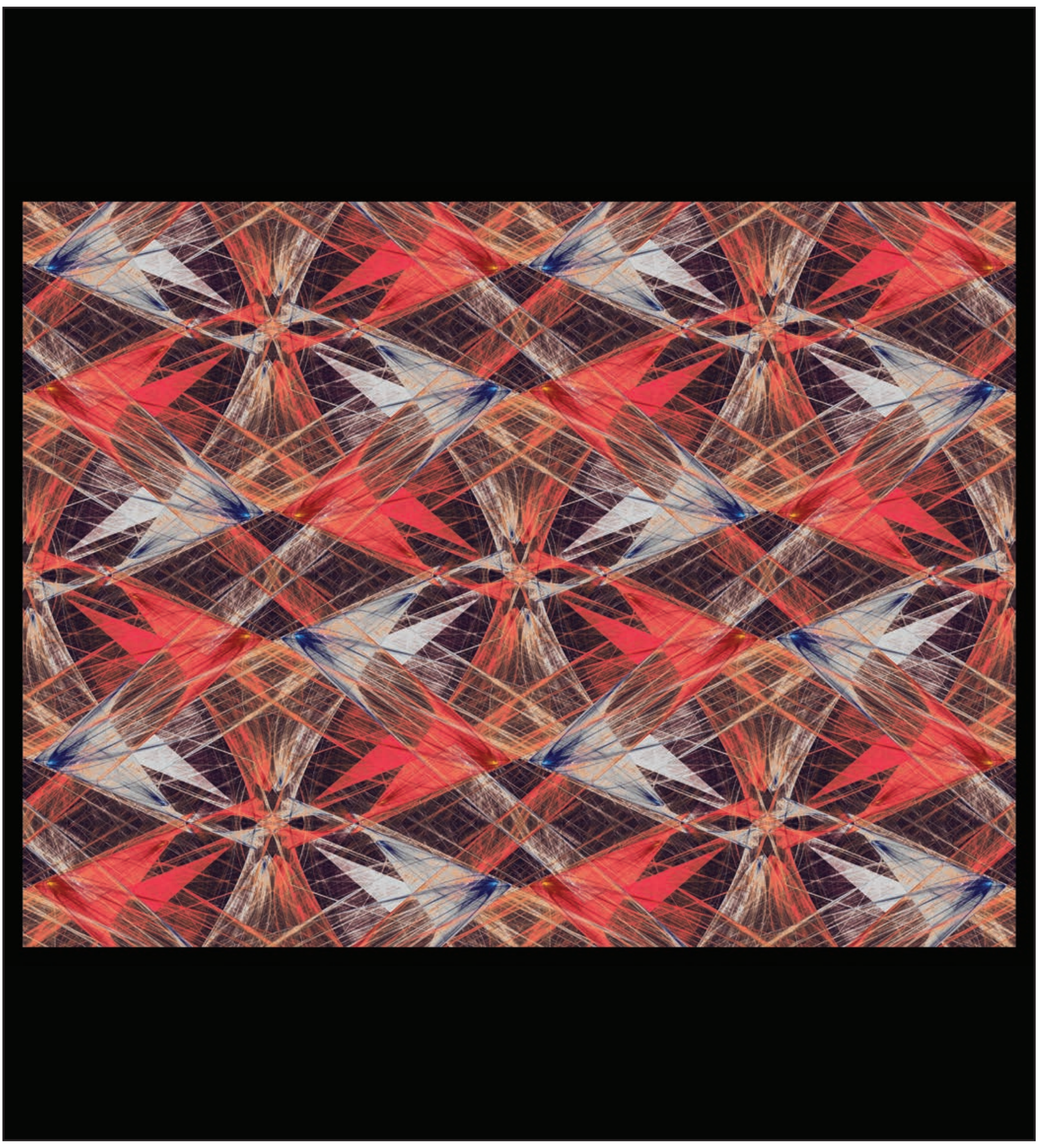
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2	3
4	5	6	7	8	9	10
11	12 Veterans' Day (Observed) (U.S.)	13	14	15	16	17
18	19	20	21	22 Thanksgiving (U.S.)	23	24
25	26	27	28	29	30	

OCTOBER 2012

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

DECEMBER 2012

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					



“UncertainEnd,” by Mike Field (University of Houston)

“UncertainEnd” is a section of a planar repeating pattern of type p’_{c}gg (or, in Coxeter notation, cmm/pgg). Ignoring the colors, the underlying pattern is of type cmm and is the superposition of two colored patterns, each of type pgg. The pattern was generated using an iterated function system defined on the two-dimensional torus. The resulting pattern on the torus was lifted to the plane to obtain a repeating pattern. The coloring reflects invariant measures on each of the underlying patterns of type pgg and takes account of overlap, as well as symmetry, using algorithms designed for revealing detail hidden in the dynamics. The original image was created in 2001.
—Mike Field

Mark your 2013 calendar with the following AMS MEETINGS: *Joint Mathematics Meetings* in San Diego, CA (January 9–12), and sectional meetings including those held at *University of Mississippi*, Oxford, MS (March 1–3), *Boston College*, Chestnut Hill, MA (April 6–7), *Iowa State University*, Ames, IA (April 27–28), *University of Louisville*, KY (October 5–6), *Washington University*, St. Louis, MO (October 18–20) and *University of California*, Riverside (November 2–3). See the most current information about AMS meetings and conferences at **www.ams.org/meetings**.

DECEMBER 2012

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3	4	5	6	7	8
9 Hanukkah begins	10	11	12	13	14	15
16	17	18	19	20	21	22
23 / 30	24 / 31	25 Christmas	26 Kwanzaa begins	27	28	29

NOVEMBER 2012

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

JANUARY 2013

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

2012 at a glance

JANUARY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

FEBRUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

MARCH

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

APRIL

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

MAY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

JUNE

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

JULY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

AUGUST

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

SEPTEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

OCTOBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

NOVEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

DECEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

2013 at a glance

JANUARY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

FEBRUARY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

MARCH

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APRIL

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

MAY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JUNE

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

JULY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

AUGUST

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

OCTOBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

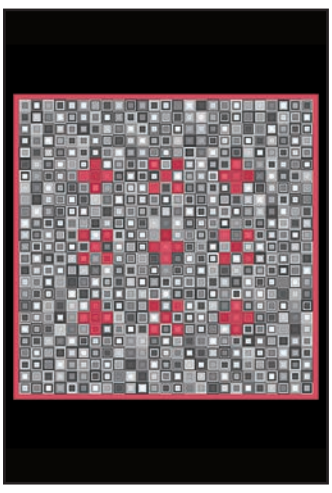
NOVEMBER

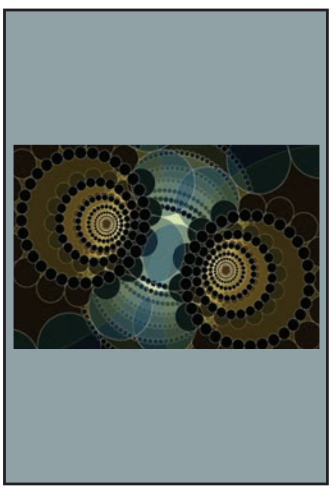
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

DECEMBER

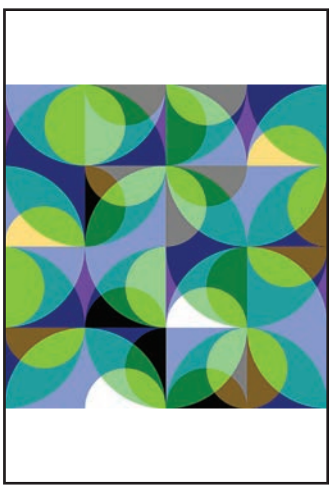
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

2012 Calendar of Mathematical Imagery

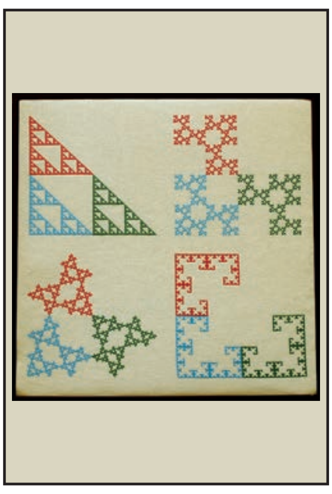
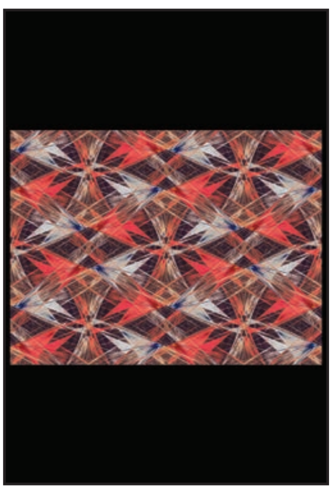










AMS
American Mathematical Society
www.ams.org

American Mathematical Society
201 Charles Street
Providence, RI 02904-2294 USA
tel: 401-455-4000
fax: 401-331-3842

MATHCAL/2012