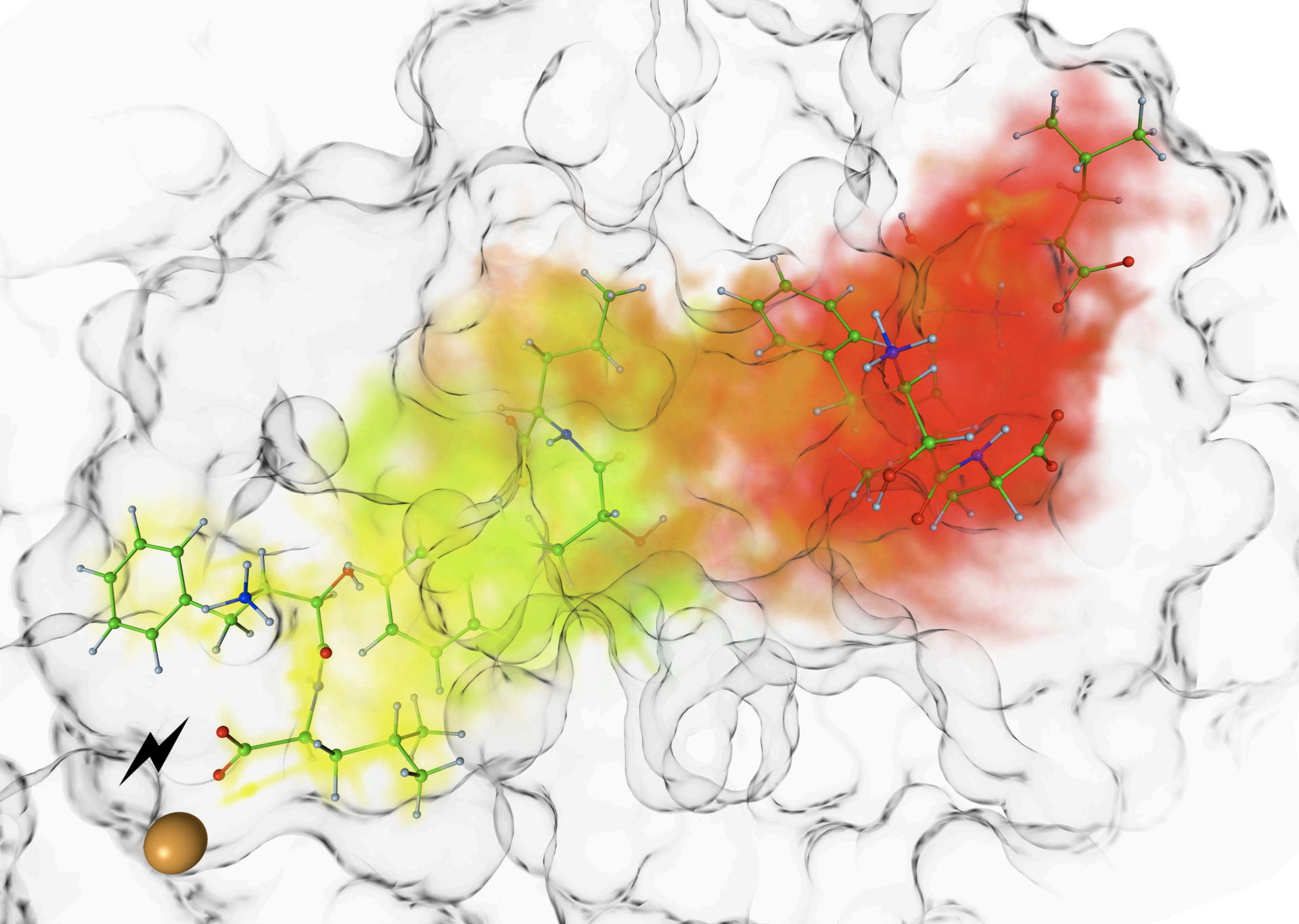# Maths Calendar 2010

Images from DFG funded research projects

Efficient mathematical methods reveal enzymatic binding processes: Inhibitor molecule bestatin binds to the catalytical center of aminopeptidase N in a three step process. (Image: Alexander Bujotzek, SFB 765 - C 2: Peter Deuflhard, Marcus Weber)

| Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
28	29	30	31	1	2	3

4	5	6	7	8
				
				* Richard Courant
				  (1888 - 1972)
					9	10
						
						* Issai Schur
						  (1875 - 1941)
						* Ruth Moufang
						  (1905 - 1977)

11	12	13
		
		* Erhard Schmidt
		  (1876 - 1959)
			14	15	16
					
					* Erich Kähler
					  (1906 - 2000)
						17

18	19
	
	* Alfred Clebsch
	  (1833 - 1872)
		20	21	22	23
					
					* David Hilbert
					  (1862 - 1943)
						24

25
 	
* Hermann Amandus
  Schwarz
  (1843 - 1921)
	26	27	28	29
				
				* Ernst Eduard Kummer
				  (1810 - 1893)
					30	31

December 2009
M T W T F S 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 2010
M T W T F S S
 1 2 3 4 5 6 7
 8 9 10 11 12 13 14
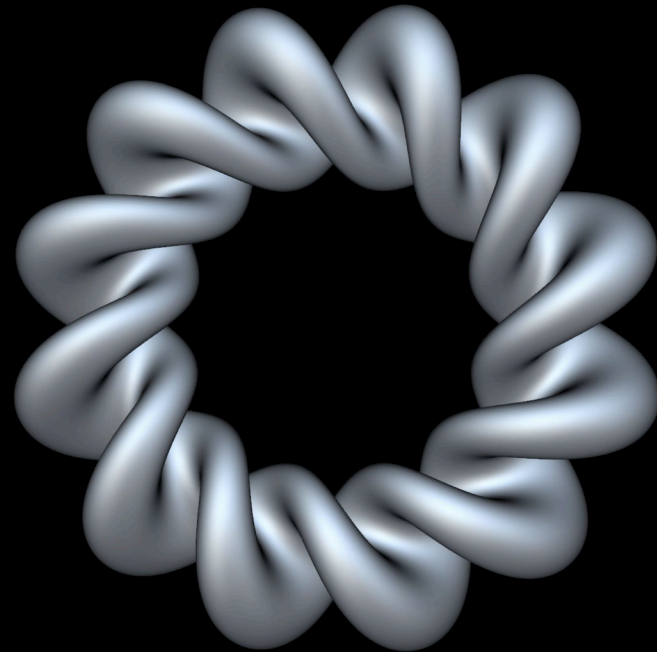15 16 17 18 19 20 21
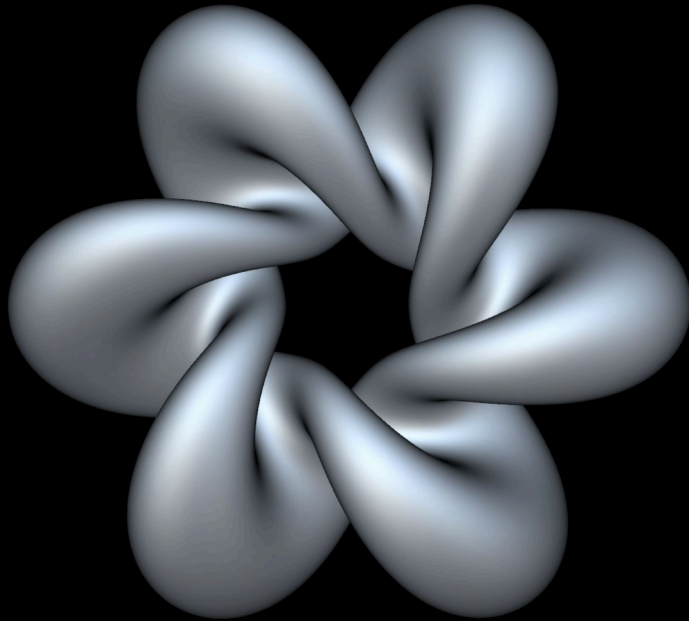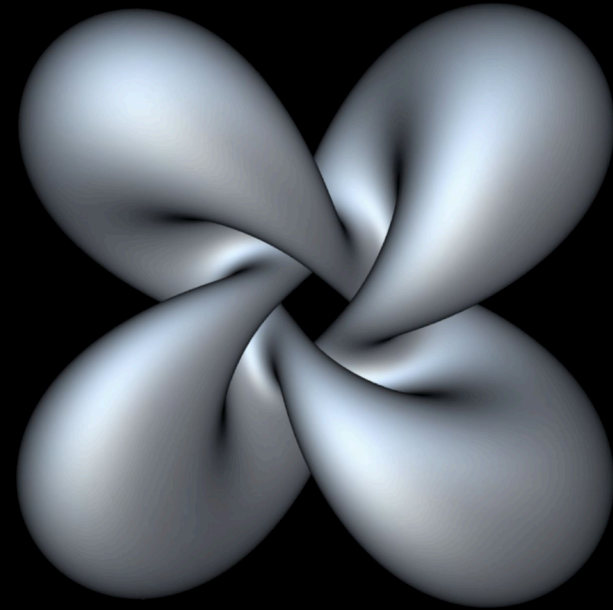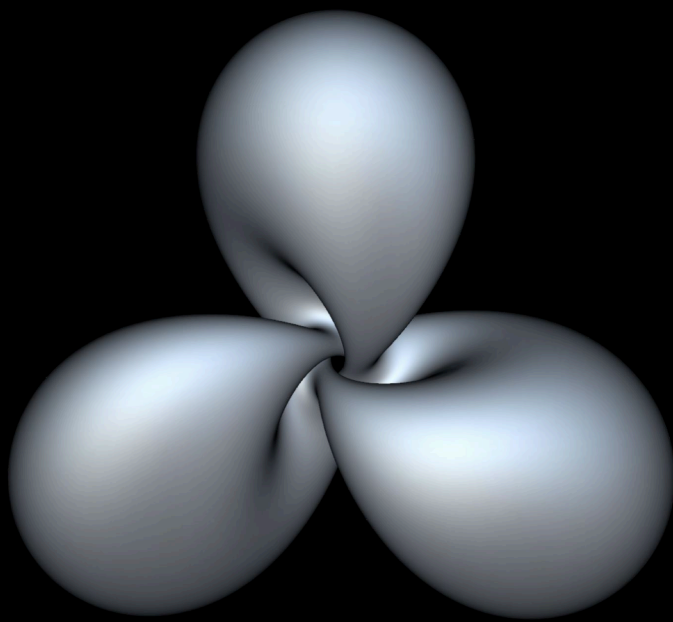22 23 24 25 26 27 28

January 2010
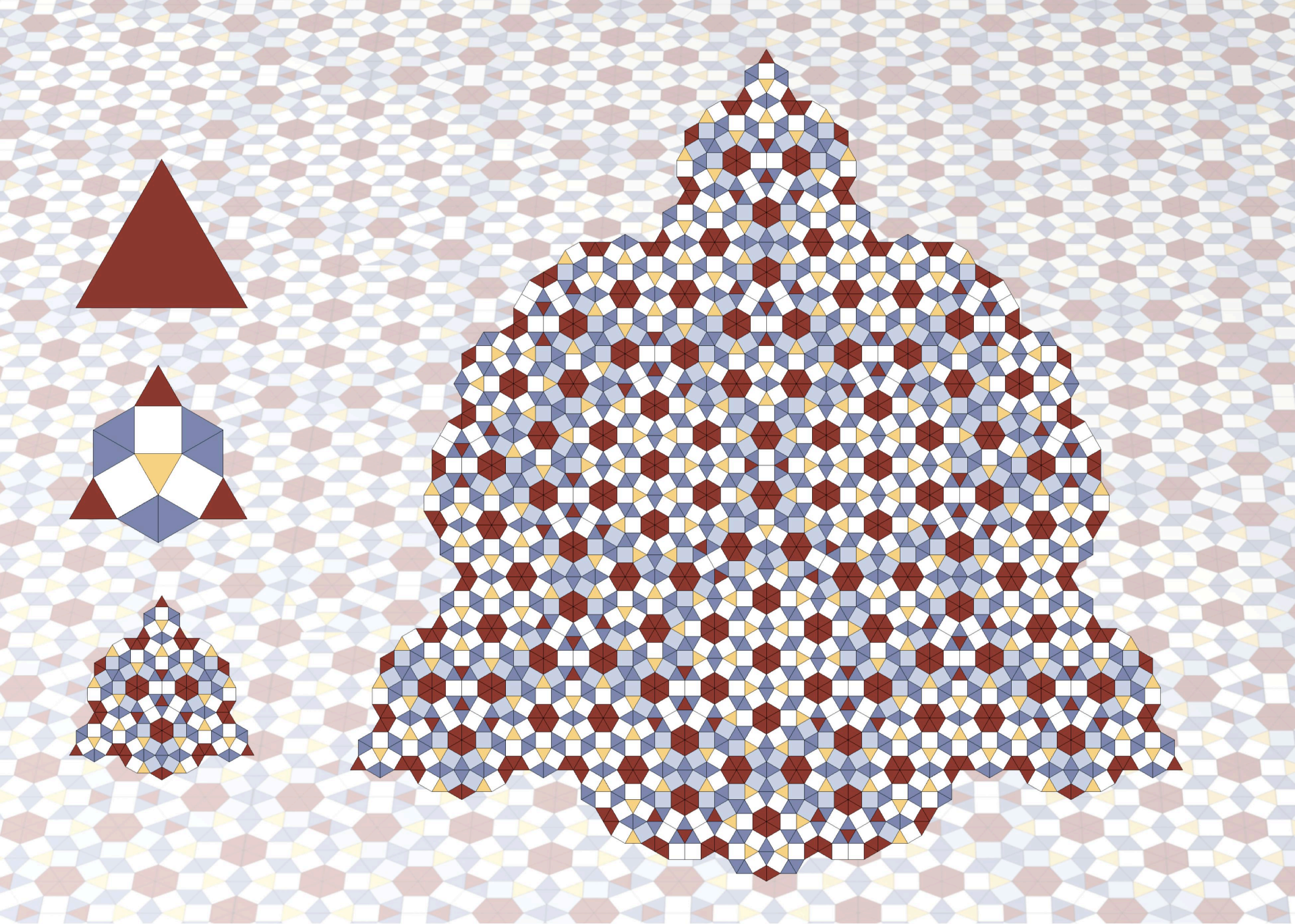
Nonperiodic square triangle tilings are important models for quasicrystals. They can be generated by inflate- and subdivide rules. The image shows the first three steps of such a rule. (Image: Dirk Frettlöh, SFB 701 - A1: Michael Baake)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3	4	5	6	7
8	9	10 * Richard Brauer (1901 - 1977)	11	12	13 * Peter Gustav Lejeune Dirichlet (1805 - 1859)	14 * Hermann Hankel (1839 - 1873) * Edmund Landau (1877 - 1938)
15	16	17	18	19	20	21
22	23	24	25	26	27	28
1	2	3	4	5	6	7

January 2010
```
M  T  W  T  F  S  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 2010
```
M  T  W  T  F  S  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 2010

Equivariant Willmore tori with 3, 4, 6 and 12 lobes (Image: Nicholas Schmitt, TR 71 - B 5: Franz Pedit & SPP 1154 - PE 1535/2, PI 158/7: Franz Pedit, Ulrich Pinkall)

| Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3 * Georg Cantor (1845 - 1918)	4	5	6	7
	9	10	11	12	13	14
15	16	17 * Wolfgang Döblin (1915 - 1940)	18	19	20	21
22	23 * Emmy Noether (1882 - 1935)	24	25 * Christophorus Clavius (1538 - 1612)	26 * Adolf Hurwitz (1859 - 1919)	27	28
29 * Martin Eichler (1912- 1992)	30 + Adam Ries (1492 ? - 1559)	31	1	2	3	4

February 2010

M	T	W	T	F	S	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

April 2010

M	T	W	T	F	S	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		

March 2010
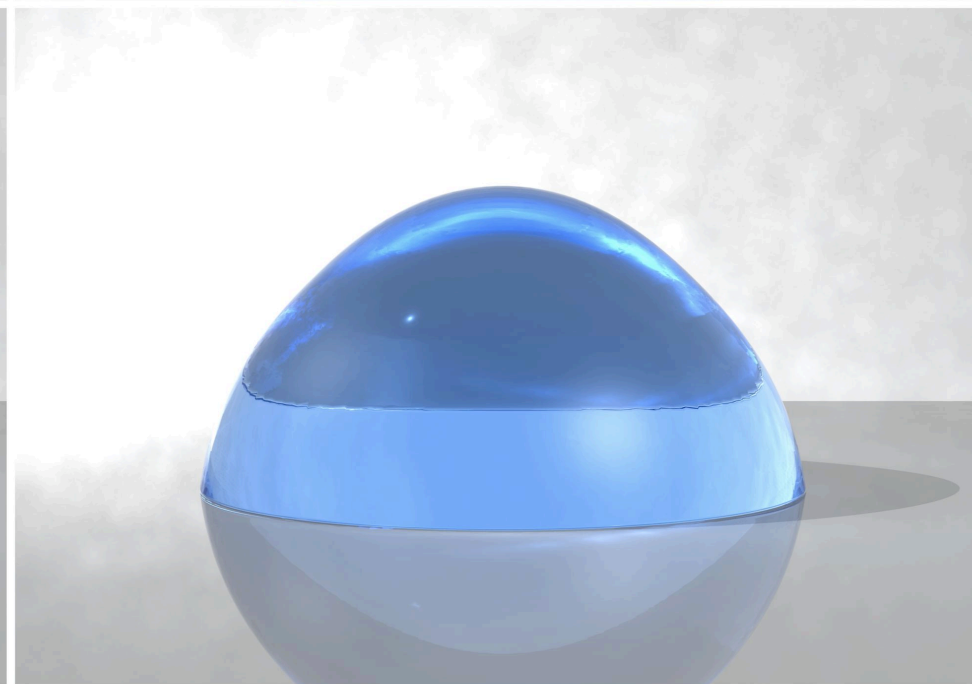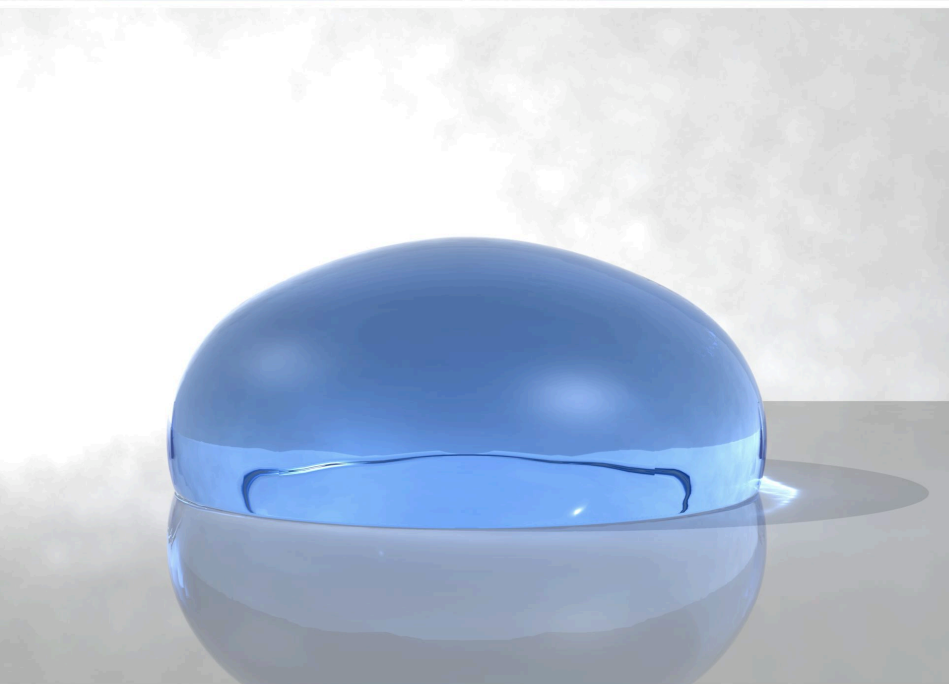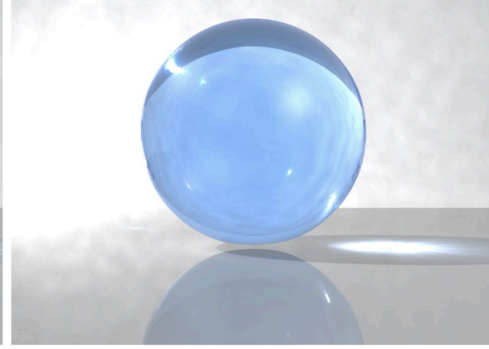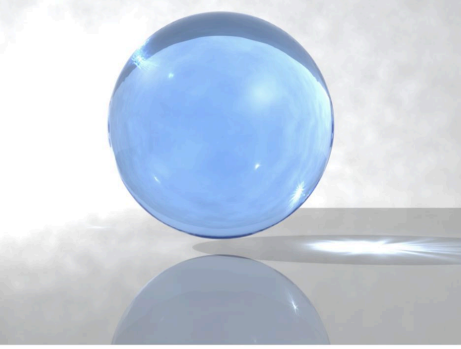
For the numerical simulation of wetting processes the interaction of fluids and solid substrates is investigated. The images show the behavior of a water droplet on silicon rubber. (Images: Margrit Klitz, Peter Zaspel, SFB 611 - C 3: Michael Griebel)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
29	30	31	1	2	3	4
5 * Georg Faber (1877 - 1966)	6	7	8	9	10	11
12 * Ferdinand von Lindemann (1852 - 1939)	13	14	15 * Hermann Graßmann (1809 - 1877)	16 * Gotthold Eisenstein (1823 - 1852)	17	18
19	20	21	22 * Ludwig Otto Hesse (1811 - 1874)	23	24	25 * Felix Klein (1849 - 1925)
26	27	28	29	30 * Carl Friedrich Gauß (1777 - 1855)	1	2

April 2010

From statistical shape analysis of feet towards optimizing sports shoes (Image: Benedikt Wirth, SPP 1253 - RU 567/10: Martin Rumpf)

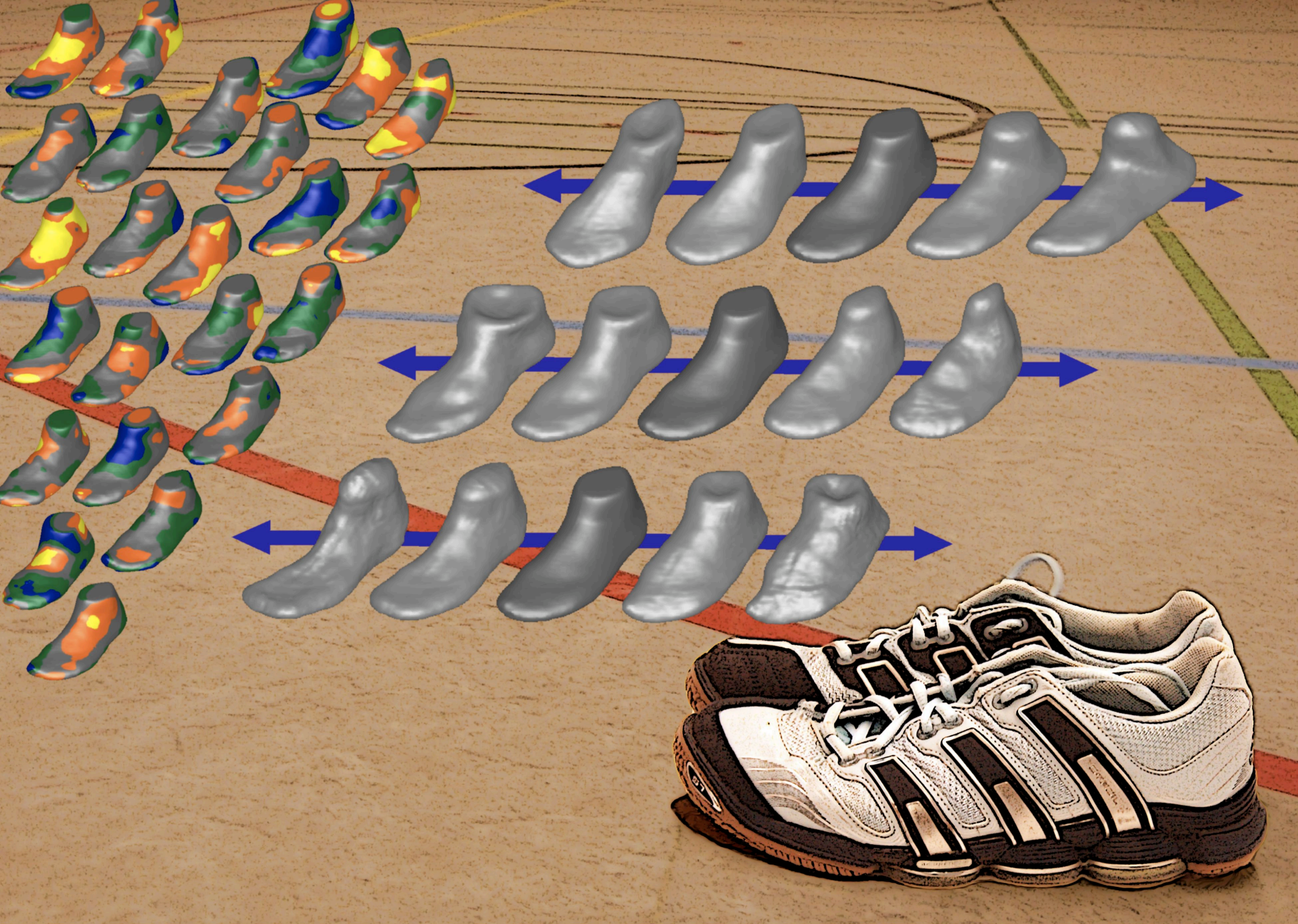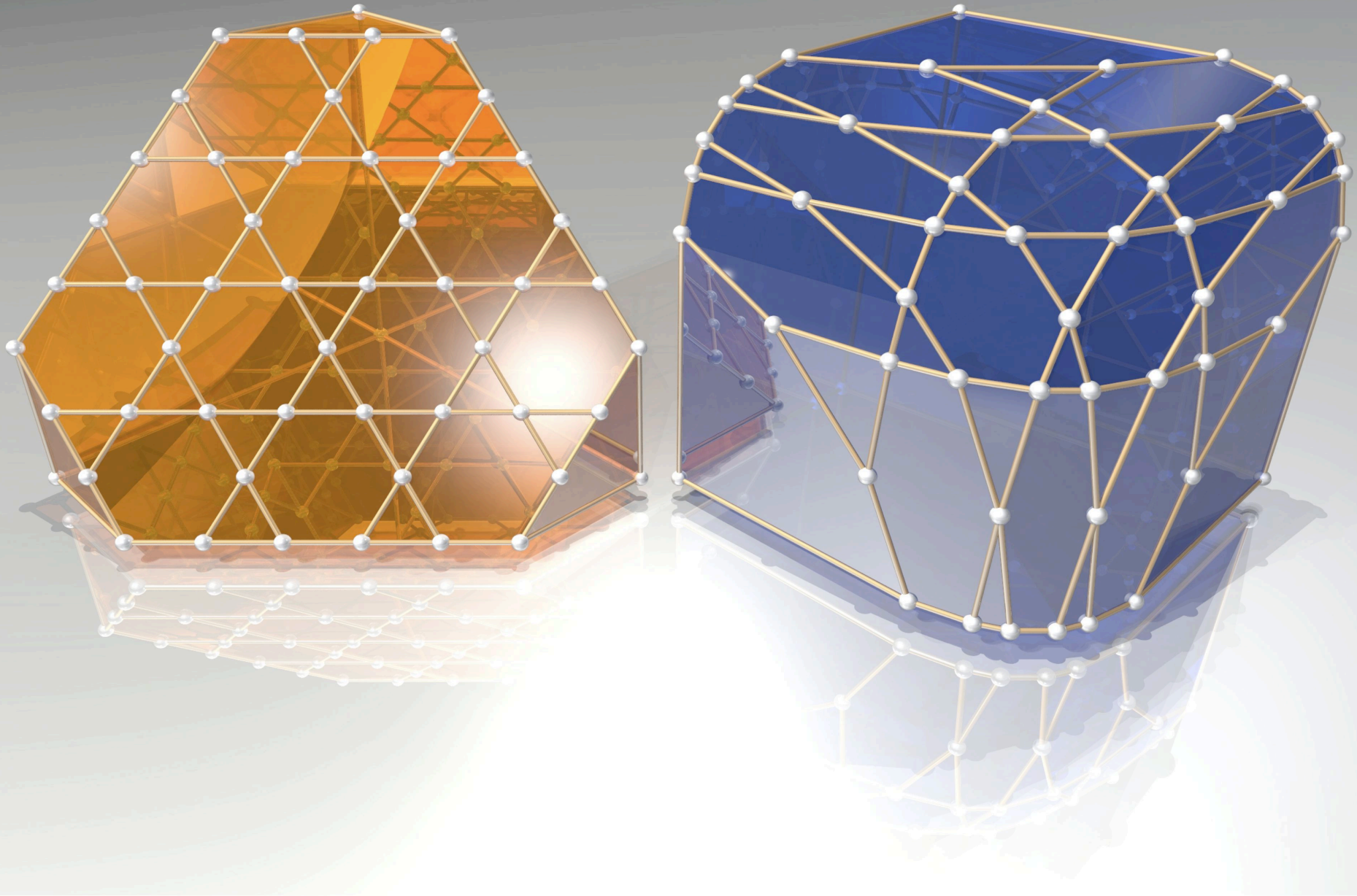| Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
April 2010 M T W T F S S 　　　1　2　3　4 5　6　7　8　9　10　11 12　13　14　15　16　17　18 19　20　21　22　23　24　25 26　27　28　29　30	**June 2010** M T W T F S S 　1　2　3　4　5　6 7　8　9　10　11　12　13 14　15　16　17　18　19　20 21　22　23　24　25　26　27 28　29　30	28	29	30	1	2
3	4	5	6	7 * Carl Gottfried 　Neumann (1832-1925) * Carl Gustav Axel 　Harnack (1851-1888) * Oskar Perron 　(1880 - 1975)	8	9
10 * Wilhelm Killing 　(1847 - 1923)	11	12	13	14 * Rudolf Lipschitz 　(1832 - 1903)	15	16
17	18	19	20	21	22	23
24	25	26	27	28 * Hans Zassenhaus 　(1912 - 1991)	29	30
31	1	2				

May 2010

New robust optimization methods, e.g., for delay resistant timetabling, see the aberrations that solutions may undergo. The left aberration polytope is smaller, the solution more robust. (Image: Sebastian Stiller, DFG Research Center Matheon - B15: Ralf Borndörfer, Martin Grötschel, Rolf Möhring)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
31	1	2	3	4	5	6 * Johannes Regiomontanus (1436 - 1476) * Max August Zorn (1906 - 1993)
7	8	9	10	11	12	13
14 * Fritz John (1910 - 1994)	15	16 * Julius Plücker (1801 - 1868)	17	18	19	20
21	22 * Hermann Minkowski (1864 - 1909)	23	24	25	26	27
28	29	30	1	2	3	4

May 2010

M	T	W	T	F	S	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 2010

M	T	W	T	F	S	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 2010

The Julia set of the quadratic polynomial $z^2 - 0.1226 + 0.7449i$, seen through the linearization map at its repelling fixed points (Image: Dzmitry Dudko, Laurent Bartholdi, GRK 1493)

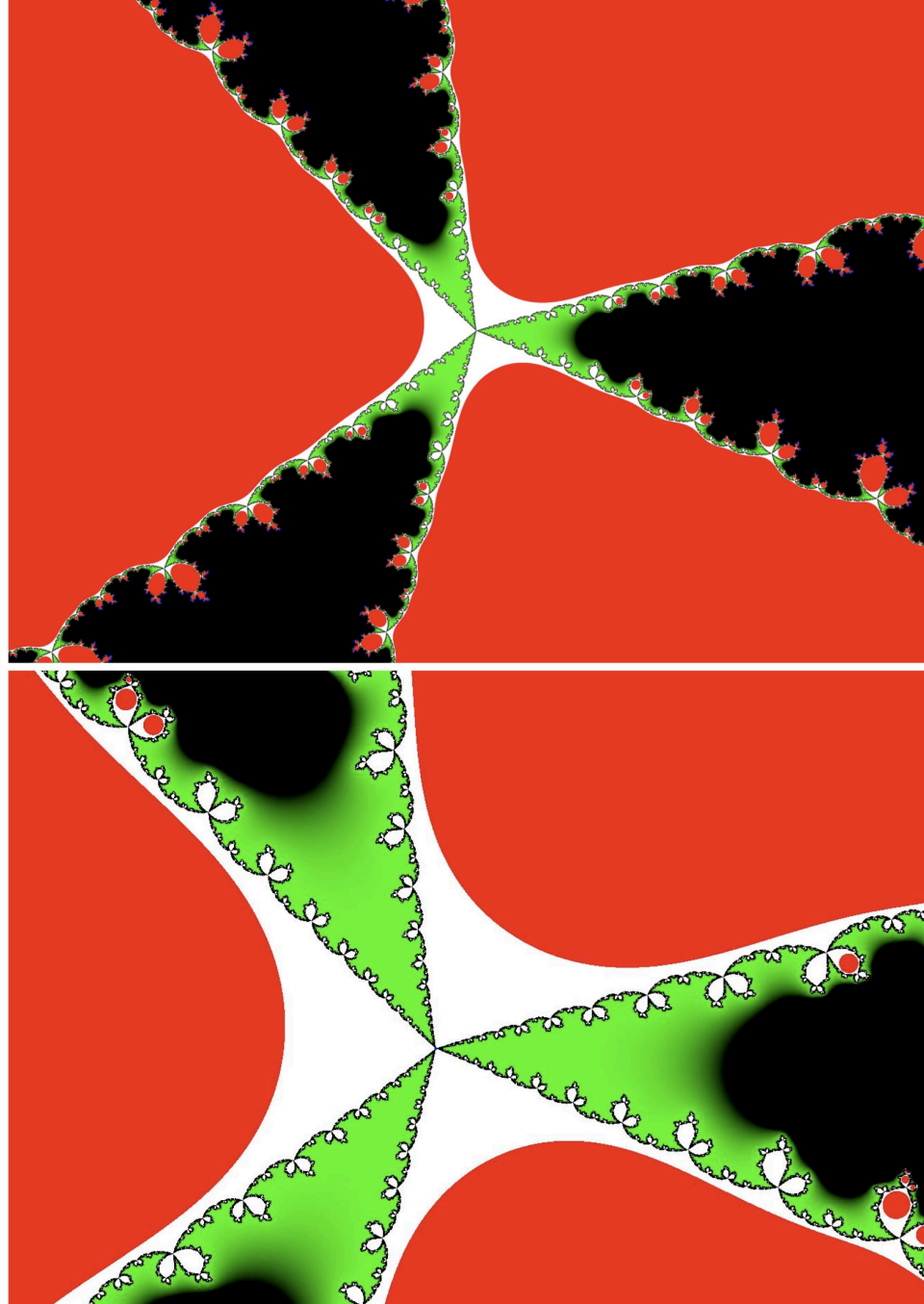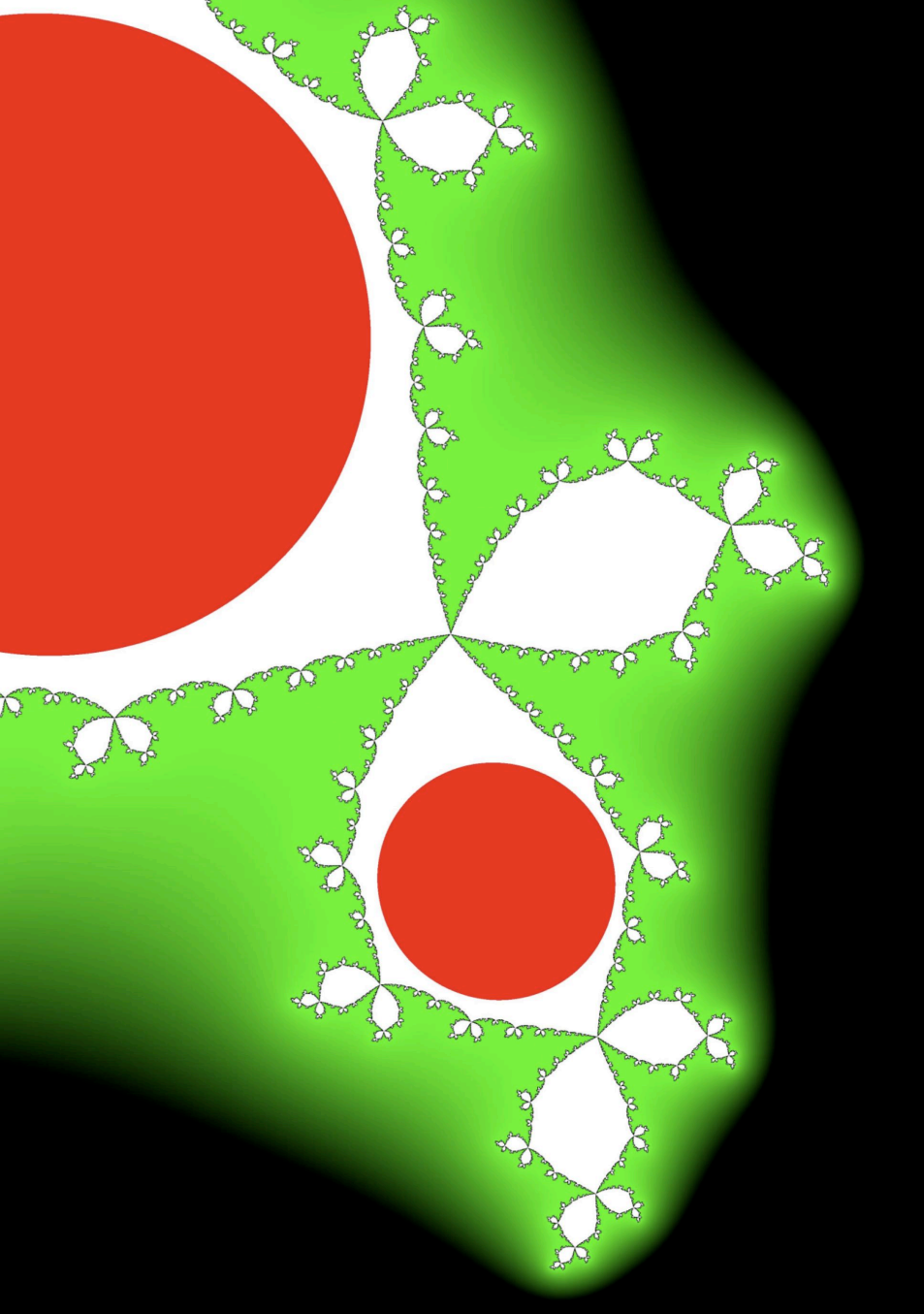| Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
28	29	30	1 * Gottfried Wilhelm Leibniz (1646 - 1716)	2	3	4 * Jürgen Moser (1928 - 1999)
5	6 * Lothar Collatz (1910 - 1990)	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22 * Reinhold Baer (1902 - 1979)	23	24 * Friedrich Schottky (1851 - 1935)	25
26	27 * Ernst Zermelo (1871 - 1953)	28	29	30	31	1

June 2010
M T W T F S 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 2010
M T W T F S 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 2010

Minimal energy configuration for N = 2790 interacting particles on a sphere, computed using a finite element discretization of a dynamic density functional theory (Image: Thomas Witkowski, SPP 1296 - VO 899/7: Axel Voigt)

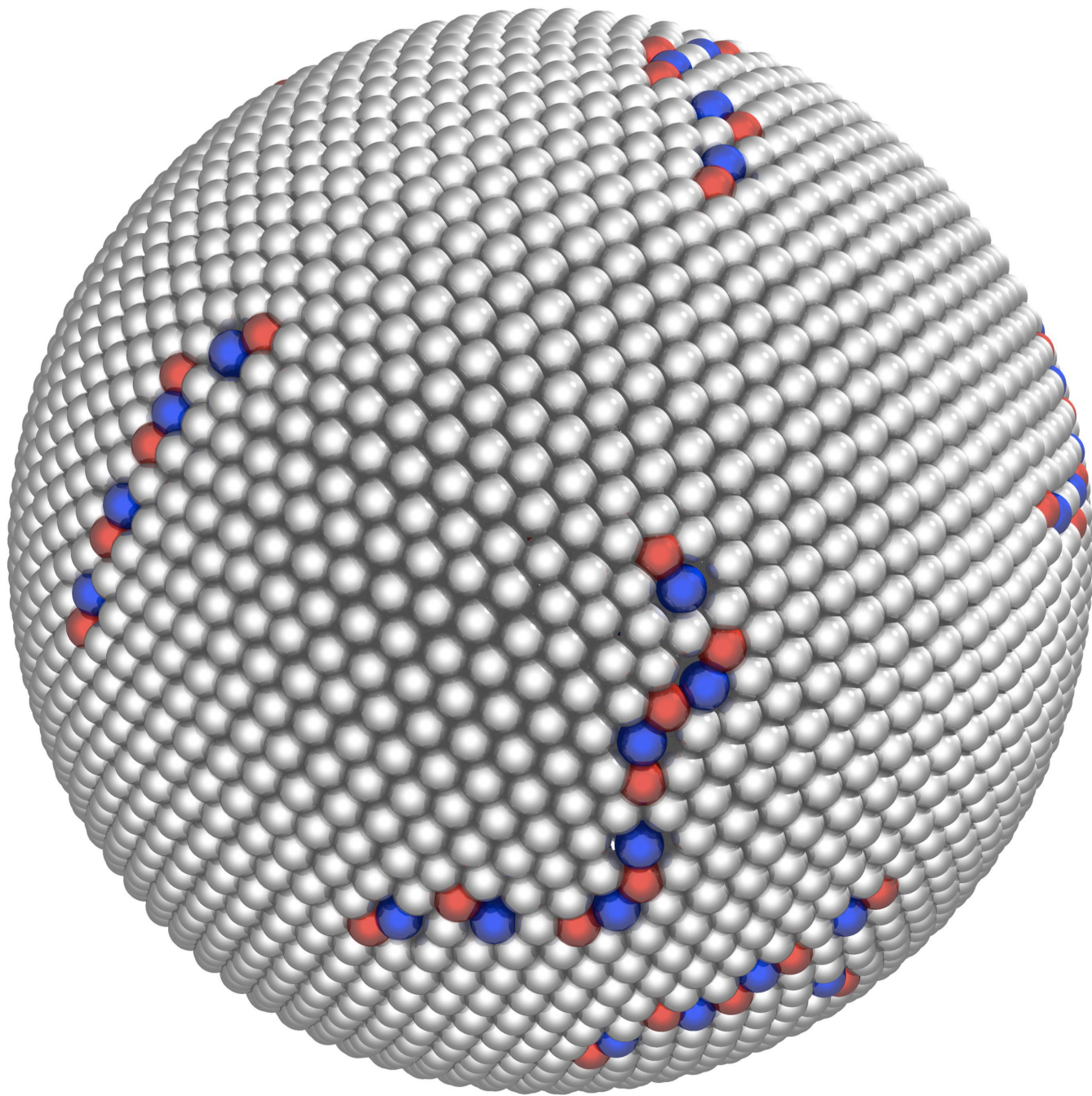| Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
July 2010 M T W T F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	September 2010 M T W T F S S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	28	29	30	31	1 * Otto Toeplitz (1881 - 1940)
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	ICM 2010 $\lfloor \tau(n) \rfloor \le n^{...} d(n)$ HYDERABAD ● INDIA	20	21	22
23	24	25	26 * Wolfgang Krull (1899 - 1971)	27	28	29
30 * Carl Runge (1856 - 1927)	31	1				

August 2010

$$F(x) + \varepsilon^{\delta} = y^{\delta}$$

$$f = A^* x = \sum x_\lambda \psi_\lambda, \qquad \|x\|_1 \leq R$$

$$\min_{x \in B_R} \left\| F(x) - y^{\delta} \right\|_Y^2$$

$$x^{n+1} = P_{B_R}(x^n + \beta^n F'(x^{n+1})^*(y^{\delta} - F(x^n)))$$
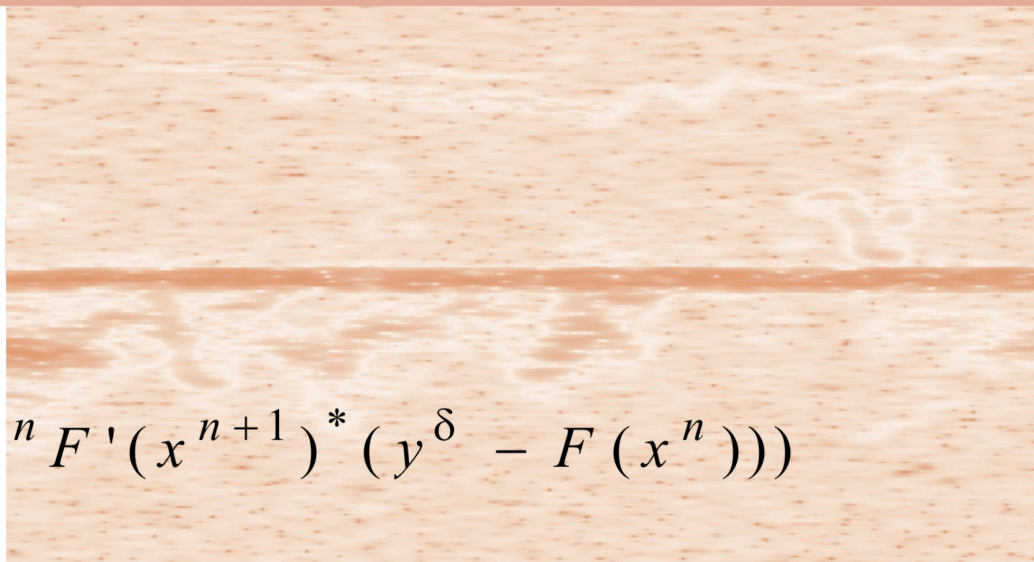
Sparse signal recovery in the field of meteorological radar data analysis: Regularization theory and iterative concepts for nonlinear inverse and ill-posed problems allow an improved retrieval of essential information about the dynamics of the atmosphere. (Image: Gerd Teschke, Individual Grant TE 354/5)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
30	31	1	2 * Joachim A. Nitsche (1926 - 1996)	3	4	5
6	7	8	9	10	11	12
13	14 * Franz Rellich (1906 - 1955)	15	16	17 * Bernhard Riemann (1826 - 1866)	18 * DMV (1890 -)	19
20 * Erich Hecke (1887 - 1947)	21	22	23	24	25	26
27	28 * Kurt Otto Friedrichs (1901 - 1982)	29	30 * Ernst Hellinger (1883 - 1950)	1	2	3

August 2010

M	T	W	T	F	S	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 2010

M	T	W	T	F	S	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 2010
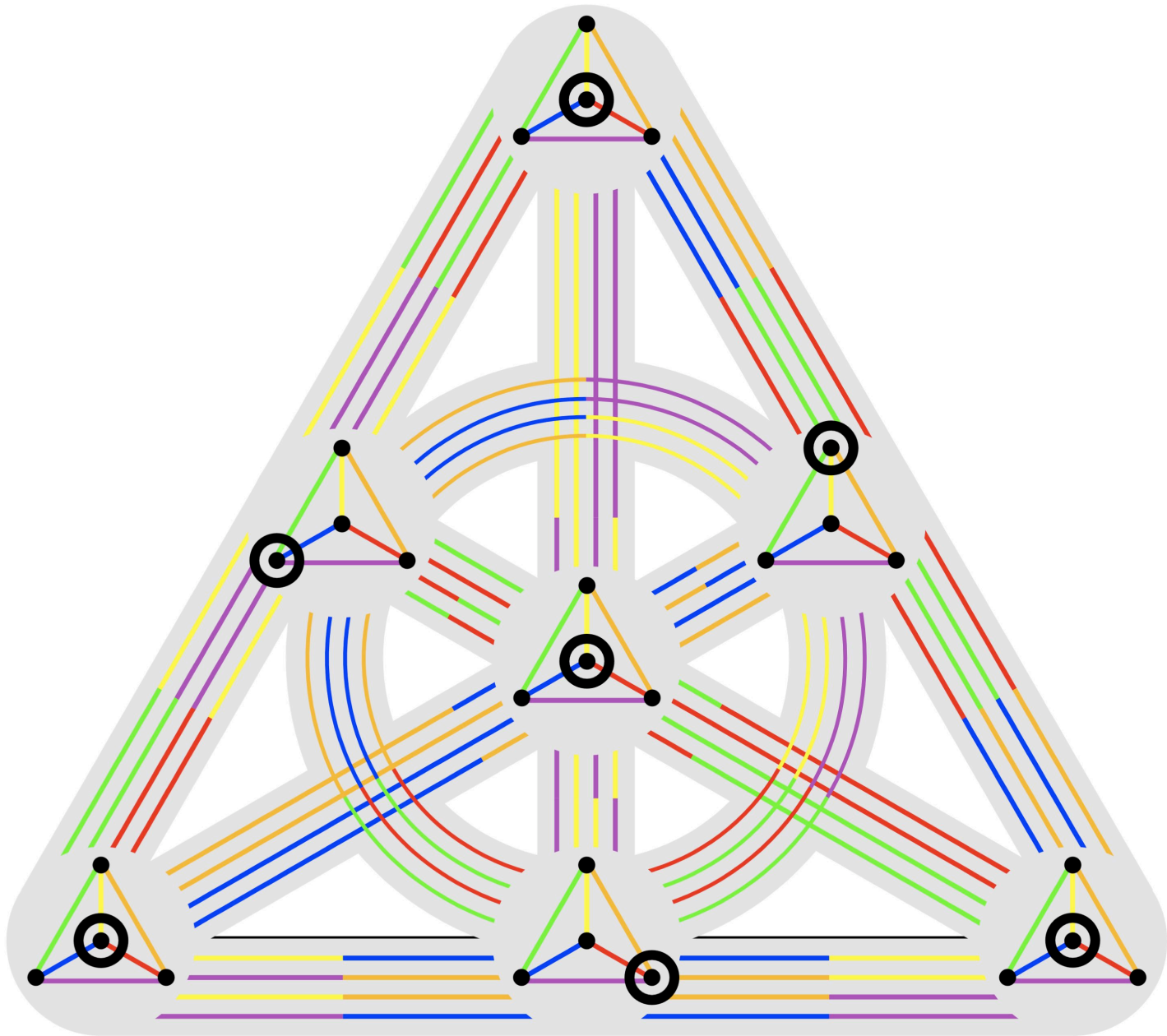
The projective Hjemslev plane over the integers modulo 4. The seven highlighted points form a hyperoval that can be transformed into an expurgated version of the Nordstrom-Robinson code. (Image: Michael Kiermaier, Individual Grant WA 1666/4: Axel Kohnert, Alfred Wassermann)

| Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
27	28	29	30	1	2	3
4	5	6 * Richard Dedekind (1831 - 1916)	7	8	9 * Heinrich Behnke (1898 - 1979)	10
11	12	13	14	15	16	17
18	19	20 * Hans Lewy (1904 - 1988)	21	22	23	24
25	26 * Ferdinand Georg Frobenius (1849 - 1917)	27	28	29	30	31 * Karl Weierstraß (1815 - 1897)

September 2010
M T W T F S 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 2010
M T W T F S 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 2010
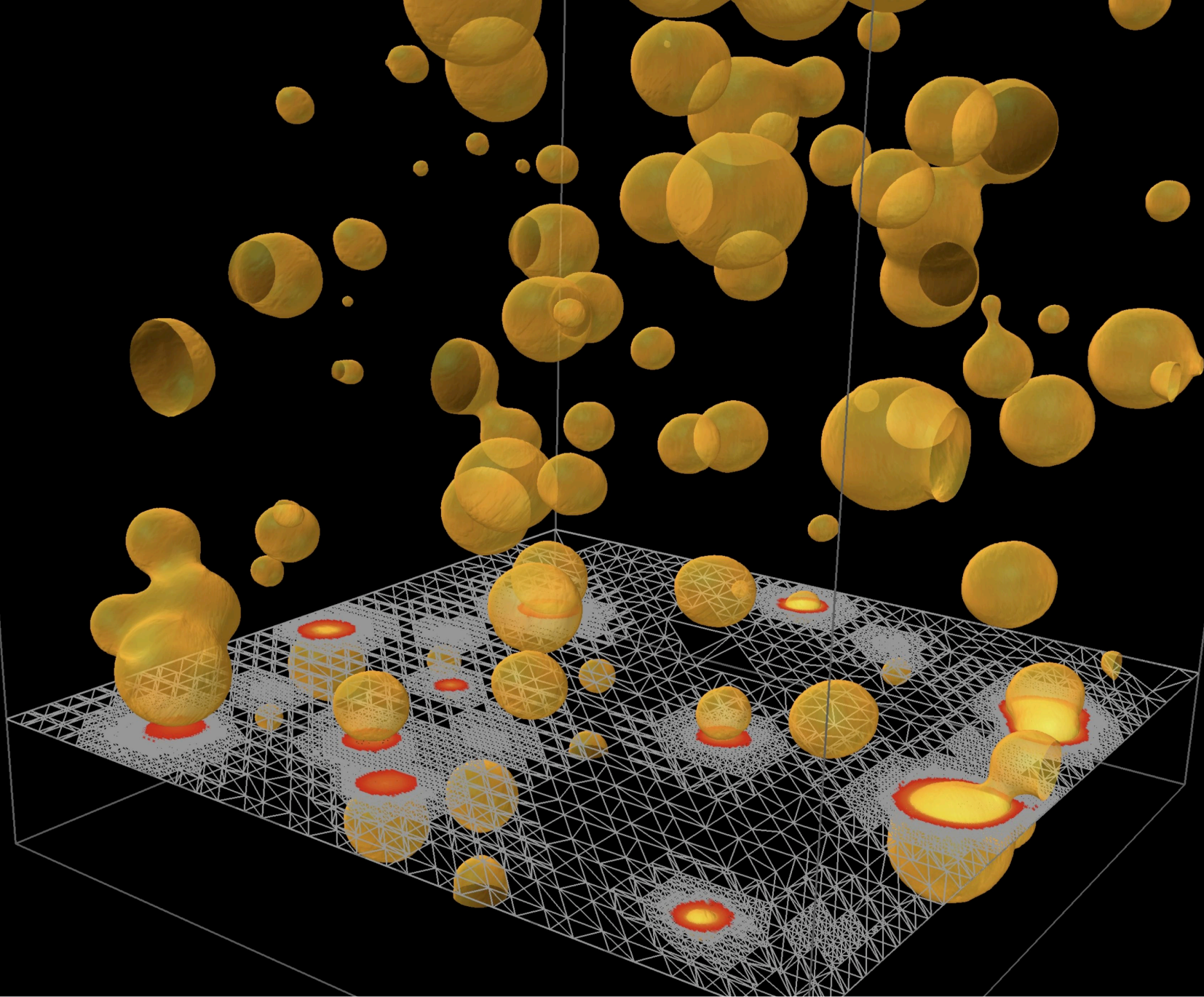
One timestep of a simulation of the microstructure coarsening of a eutectic AgCu alloy. The copper-rich phase and a cross section of the computational grid are shown. (Image: Uli Sack, DFG Research Center Matheon - C17: Ralf Kornhuber, Jürgen Sprekels)

| Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3	4	5	6	7
8 * Moritz Pasch (1843 - 1930) * Felix Hausdorff (1868 - 1942)	9 * Theodor F. Kaluza (1885 - 1954) * Hermann Weyl (1885 - 1955)	10	11	12	13 * Max Dehn (1878 - 1952)	14
15	16	17 * August Ferdinand Möbius (1790 - 1868)	18	19	20	21
22	23	24	25 * Ernst Schröder (1841 - 1902)	26	27	28
29	30	1	2	3	4	5

October 2010
M T W T F S 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 2010
M T W T F S 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 2010
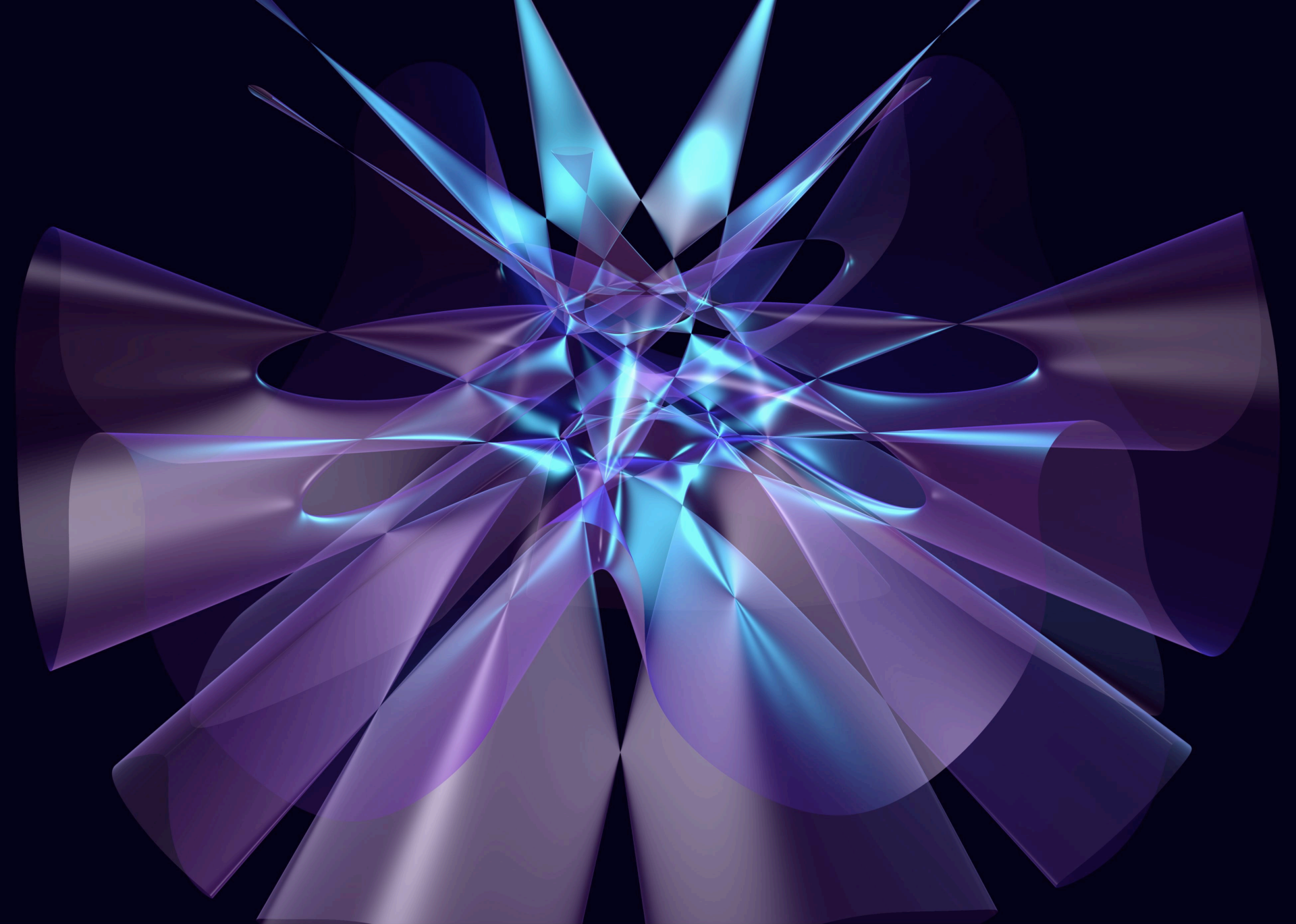
Computer algebra methods allow to find and analyze interesting geometric objects such as the surface with many singularities shown in this image.
(Image: Oliver Labs, SPP 1489: Wolfram Decker, scientific coordinator)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
29	30		2	3	4	5
6	7 * Leopold Kronecker (1823 - 1891)	8	9 * Gustav Roch (1839 - 1866)	10 * Carl Gustav Jacob Jacobi (1804 - 1851)	11	12
13	14	15	16	17	18	19
20	21	22 * Johann Friedrich Pfaff (1765 - 1825) * Otto Hölder (1859 - 1937)	23	24	25	26
27 * Johannes Kepler (1571 - 1630)	28	29 * Kurt Hensel (1861 - 1941)	30	31 * Carl Ludwig Siegel (1896 - 1981)	1	2

November 2010

M	T	W	T	F	S	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 2011

M	T	W	T	F	S	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 2010

To be continued ...