ARTICLES, ETC.

Articles

"A summation formula and an identity for a class of Dirichlet series", *Acta Arithmetica*, Vol. XI, No. 4; 1966, 443-449.
"Point groups and color symmetry", *Zeitschrift fur Kristallographie*, 142, 1975, 1-23.

"The mechanism of formation of certain growth twins of the penetration type", *Neues Jarbuch fur Mineralogie*, 11, 1976, 518-524.

"A prophet without honor, Dorothy Wrinch 1894-1976", *Smith Alumnae Quarterly*, April 1977, 18-23.

"Number, the ruler of all things", *Smith Alumnae Quarterly*, February, 1978, 12-18.

"Themes and variations", *Criss-Cross Art Communications*, 7,8,9; 1979, 40-45.

"Color groups", *Discrete Applied Mathematics*, 1, 1979, 51-73.

"Recent advances and unsolved problems in symmetry theory", in *Uzori Symmetrii*. In Russian. (with R.V. Galiulin)

"The genesis of growth twins in crystals", Kristallografia, 25 (5), 1980, 908-915, in Russian. English translation in *Soviet Physics - Crystallography*, 25 (5), September-October 1980, 520-524.

"A simple characterization of the subgroups of space groups", *Acta Crystallographica*, A36, 1980, 845-850.

"Which tetrahedra fill space?", *Mathematics Magazine*, 54 (5), November 1981, 227-243.

"Coloring symmetrical objects symmetrically", *Mathematics Magazine*, 56 (1), January 1983, 3-16.

"Color symmetry and colored polyhedra", *Acta Crystallographica*, A39, 1983, 505-511.

"On colored lattices and lattice preservation", *Acta Crystallographica*, A39, 1983. (with M.Rolley-LeCoz and Y. Billiet)

"An introduction to the theory of figures: the geometry of E.S. Fedorov*", Structural Topology*, 10, 1984, 5-22. (with R.V. Galiulin)

 "Space groups and their isotropy subgroups, *Journal of Mathematical Physics*, 25 (1984) 3148-3154. (with M.V. Jaric)

"Morphisms of crystallographic groups: kernels and images*", Journal of Mathematical Physics*, 26 (1985) 219-228.

"Geometry and crystal symmetry", *Computers and Mathematics with Applications*, Vol. 12B, Nos. 3/4, 1986, 565-578. Reprinted in Symmetry, Istvan Hargittai, editor. Pergamon Press, 1986.

"Two-dimensional math in a three dimensional world", *Education Week*, Vol. IV, No. 20, February 6, 1985, p. 40. Reprinted in *Education Digest*, October 1985, 50-52 (with G. Fleck).

"Introduction to mathematical crystallography", 19 pp., and "Report on the workshop on mathematical crystallography", 6 pp., *IHES/p/85/47* (preprint).

"F faces of apatite and its morphology: theory and observation*", Journal of Crystal Growth* 78 (1986), 468-478. (with R.A. Terpstra, P. Bennema, P. Hartman, C.F. Woensdreght and W.G. Perdok)

"The crisis in crystallography: a case study in the role of aesthetics in science", *Intersciencia*, Vol. 12, No. 2 (1987), 58-62.

"Tiling the torus and other space forms", *Discrete and Computational Geometry*, Vol. 3, No. 1, 1988 (55-72).

"Color symmetry", *Computers and Mathematics with Applications*, Vol. 16, No. 5-8, 1988, 545-533. In *Crystal Symmetries*, edited by Istvan Hargittai and Boris K. Vainshtein, the Shubnikov Centennial Papers, Pergamon Press.

"Mathematics in the Philippines". *Intersciencia,* Vol. 13, No. 3, May-June 1988, 141-144.

"The algebraic Escher", *Structural Topology*, No. 15, 1989, 31-42.

"Symmetry revisited", *Computers and Mathematics with Applications*, Vol. 17, No. 1-3, 1989, 1-12 (published as Symmetry II, Istvan Hargittai, Pergamon Press.)

"Finding the finite groups of symmetries of the sphere", *in The American Mathematical Monthly*, 1990, Vol. 97, No. 4, 329-335.

"Quasicrystals: the view from Les Houches", with Jean Taylor. *The Mathematical Intelligencer*, Vol. 12, No. 2, 1990, 54-64.

"From symmetry to disorder: A Personal Odyssey" (1991 Engel Lecture; published in *Five College Ink*, Five Colleges, Inc., Amherst, MA, May 1991.)

"Quasicrystals and mathematics", *Phase Transitions*, V. 43, Nos 1-4, Section B (Special Issue on Modulated structures, Polytypes, and Quasicrystals, Part I, edited by M. Farkas-Jahnke and E. Pál), 1993, pp. 27-34.

"Tilings, quasicrystals, and Hilbert's 18th Problem", *Structural Topology*, v. 20, 1993, pp 7-26.

"Galilelo's book 'The Universe', 371st edition: number theory, computer graphics, and the Sciences", Smith College preprint No. 1.

"Tilings, diffraction, and quasicrystals", *The Mathematica Journal*, Vol. 4, No. 2 (1994) 10-15.

"An Extension of Voronoi's theorem on primitive parallelotopes", (with L. Michel and S.S. Ryshkov), *European Journal of Combinatorics*, 16 (1995) 59 - 63.

"Two communities and vertical integration", *The Mathematical Intelligencer*, vol. 19, no. 2, 1997, pp 33 - 37.

"Tilings by related zonotopes", (with Henry Crapo*), Mathematical and Computer Modelling*, Vol. 26, Nos. 8-10, 1997, pp. 60-73.

"The Continuing Silence of Bourbaki: an interview with Pierre Cartier", *The Mathematical Intelligencer*, Vo. 20, No. 1, 1998, pp. 22-28.

"Oberwolfach, 1940-1960", *The Mathematical Intelligencer*, Vol. 20, No. 4, 1998, pp 17-24.

"Multiregular point systems", (with Jeff Lagarias and Nikolai Dolbilin), *Discrete and Computational Geometry*, Vol. 20, 1998, pp 477-498.

"Parallel Worlds: M. C. Escher and mathematics, revisited", *The Mathematical Intelligencer*, Volume 21, No. 1, 1999, pp 13-19

"Between Discovery and Justification", *The Mathematical Intelligencer,* Vol. 22, No. 3, 2000, pp. 16-17.

"New geometric invariants for Euclidean lattices," with Peter Engel and Louis Michel, in "Réseaux euclidiens, designs sphériques et formes modulaires, J. Martinet (ed), Monographie No. 37 de *L'Enseignement Mathematique.* 268-272, Geneva, 2001.

"The Mysterious Mr. Ammann," *The Mathematical Intelligencer,* Vol. 26, No. 4, 2004.

``Silk and Society in Albania,'' *The American Entomologist*, Fall 2005, 142 – 150.

"Coxetering Crystals", Coxeter Day, *Renaissance Banff: Mathematics, Music, Art, Culture*, Conference Proceedings, 2005

"Mathematics and Narrative at Mykonos," *The Mathematical Intelligencer*, 2006, 24 – 30.

``What is a quasicrystal? '' *Notices of the American Mathematical Society*, Sept. 2006, 886-887

"Hardy as Mentor," *The Mathematical Intelligencer*, vol. 29, no. 1, winter 2006

"Thoughts on 'crystal,'", *Zeitschrift f. Kristallographie*, 222 (2007), 311

"A Point Set Puzzle Revisited", *European Journal of Combinatorics*, vol. 29, no. 8, 2008, 1933 – 1944.

"Mapping the Aperiodic Landscape, 1982 - 2007", *Philosophical Magazine*, vol. 88, no. 13-15, 2008, 2003 – 2016.

"The Grammar of Ornament", *Symmetry: Culture and Science*, 22, 1-2, (2011), 83-101.

"Martin Gardner (1914–2010)" *The Mathematical Intelligencer*, 33, 1 (2011), 51-54.

"Crystals Twins Revisited," *Israel Journal of Chemistry*, 2011, 51, 1153 – 1155 (special issue in honor of Dan Shechtman's Nobel Prize in Chemistry).

"Quasicrystals: the View from Stockholm," with Jean Taylor, in prepration

Book chapters

"The formation of penetration twins", in *Processes of Real Crystal Formation*, edited by N.V. Belov, Nauka, Moscow, 1977, 61-64, in Russian. (with N.N. Sheftal)

"Escher designs on surfaces", in *M.C. Escher, Art and Science*, edited by HSM Coxeter, R. Penrose, M. Teuber, and M. Emmer, North-Holland, Amsterdam, 1986

."A brief introduction to tilings", in *Introduction to the Mathematics of Quasicrystals*, ed. by Marko Jaric, Academic Press, 1989, 1-51.

"A brief history of geometrical crystallography", *in An Historical Atlas of Crystallography*, edited by J. Lima de Faria, Kluwer Academic Publishers, 1990, 43-59.

"Shape", in *On the Shoulders of Giants : a new approach to numeracy*, Lynn Steen, ed., National Academy of Sciences Press, 1990.

"Generalizing crystallography: puzzles and problems in dimension one", in *Quasicrystals, Networks, and Molecules of Five-Fold Symmetry*, I. Hargittai, ed., VCH Publishers, 1990.

"Isohedral parallelotopes", to appear in a volume of essays honoring the centenary of Fedorov's enumeration of the space groups, Moscow, 1991.

"Visualization and visual thinking", in *Geometry's Future*, a COMAP publication.

"Introduction to lattice geometry", in *From Number Theory to Physics*, M. Waldschmidt and P. Moussa, eds. Springer Verlag, 1992.

"Hierarchical tilings", in *Proceedings of 1991 Symposium on Hierarchically Structured Materials*, I. A. Aksay, E. Baer, M. Sarikaya and D. A. Tirrell, eds, Materials Research Society, Vol. 255, 1992.

"Calendars, pacemakers, and quasicrystals", in *In Eves' Circles* (proceedings of the "Eves Conference", Orlando, FL, June 1991), edited by J.M. Anthony, Mathematical Association of America, 1994.

"A critique of the projection method", in *The Mathematics of Aperiodic Order*, R. Moody and J. Patera, eds, Kluwer, 1997

"Tilings" (with Doris Schattschneider), in *A Handbook of Discrete and Computational Geometry*, J. Goodman and J. O'Rourke, eds, CRC Press, 1997; revised for 2nd edition, 2004

"Crystals and quasicrystals", in *A Handbook of Discrete and Computational Geometry*, J. Goodman and J. O'Rourke, eds, CRC Press, 1997; revised for second edition, 2004

"From summation formulae to lattices and back again", in *Voronoi's Impact on Modern Science*, Halyna Syta, ed., Institute of Mathematics, Kyiv, 1998, pp. 60-70.

"The Local Theorem Revisited", in *Aperiodic '97*, *Proceedings of the International Conference on Aperiodic Crystals*, M. de Boissieu, J-L Verger-Gaugry, and R. Currat, eds., World Scientific Publishers, Singapore, 1998, pp. 3-7.

"Periodic and Nonperiodic tilings of E∧n", *Contemporary Mathematics*, Volume 223, , J. Goodman and R. Pollack, eds., American Mathematical Society, 1999, pp. 293-312.

"Reflections on the Kaleidoscope", in *Symmetry 2000*, T. Laurent and I. Hargittai, eds., Portland Press, London, 2002: 101-108.

"The Symmetry Mystique", in *M. C. Escher's Legacy: a centennial celebration*, D. Schattschneider and M. Emmer, eds., Springer-Verlag, 2002: 427-444.

"Narco Brat," in *Of Human Bondage: historical perspectives on addiction*, D. Patey, ed., Smith College Studies in History, 2003: 173 – 200.

"The Camel and the Needle: silk and the Stetson letters", in *Letters from an American Utopia: the Stetson family and the Northampton Association, 1843 - 1846*, edited by K. Buckley and C. Clark, 2004 by the University of Massachusetts Press.

"Coxetering Crystals", in *Renaissance Banff*, Reza Sarhangi and R. V. Moody, eds., Conference Proceedings, 2005, pp. 411 – 418.

"Donald and the Golden Rhombohedra," in *Reflections and Projections*, edited by Chandler Davis and Erich W. Ellers, Fields Institute Communications, vol. 46, American Mathematical Society, Providence, 2006, pp. 159 – 177.

``Ice'', in *Findings on Ice*, Hester Aardse and Astrid van Baalen, (eds.) Springer Verlag (jointly published with Pars Foundation, Amsterdam, Netherlands) 2007, pp.

"The Last Second Wrangler," in *The Shape of Content* (see above).

<u>Book Reviews</u>

The Mathematical Theory of Chromatic Plane Ornaments by T.W.Wieting, *American Mathematical Monthly*, Vol. 90, No. 8 October 1983, 574-75.

Descartes on Polyhedra, by P.J. Federico, *Historia Mathematica*, Vol. 11, No. 3, August 1984, 333-334.

Dual Models, by Magnus Wenninger, *American Scientist*, March 1985.

Groups: a path to geometry, by John Burns, *American Mathematical Monthly*, Vol. 94,

No. 6, June - July 1987, 567-570.

Tilings and Patterns, by Branko Grunbaum and G.S. Shepard,   *American Scientist,* September-October 1987, 521-522.

The Shape of Space by Jeffrey Weeks; Tilings and Patterns by Branko Grunbaum and Geoffrey Shepard; Regular Solids and Isolated Singularities by Klaus Lamotke*. The Mathematical Intelligencer*, Vol. 10, No. 2, Spring 1988, 68-71.

Reality's Mirror: Exploring the Mathematics of Symmetry, by Bryan Bunch. *American Scientist,* Vol. 78, 1990, 382.

Symmetrie -- Gruppe -- Dualitat, by Erhard Scholtz.   (With Branko Grunbaum.) *Historia Mathematica,* 18, 1991, 377-380.

Visions of Symmetry, by Doris Schattschneider, and The Emperor's New Mind, by Roger Penrose. *The Mathematical Intelligencer*, Vol. 14, No. 2, 1992, 72-77.

Quasicrystals: the state of the art, by David DiVincenzo and P. Y. Steinhardt, eds, Science,
.
Spatial Tessellations, by Okabe, Boots, and Suyihare, *Science*, v. 260, May 1993, 1170-1173.

The Visual Mind, by M. Emmer (ed), *SIAM Review*, 36 v. 4 (1994), 676 - 677.

Chinese Silk: a cultural history, by Shelagh Vainker, *The Public Historian*, v. 27, no. 3, summer, 2005.

Shadows of Reality, by Tony Robbin, *Science*, v. 312, 21 April 2006.

Reviewer for mathematics, physics, and crystallography journals, scholarly book publishers, and the National Science Foundation

<u>Miscellaneous</u>

Editor (translation from the Russian) of Highly Anisotropic Crystals, by E.I. Givargizov, D. Reidel Publishing Company, Dordrecht/Boston/ Lancaster, 1986.

Op-Ed "Albanians need economic assistance", Daily Hampshire Gazette,13, 1997. (An abbreviated version appeared in the New York Times as a Letter to the Editor.)

Exhibition Catalog "Guide to the Exhibition" ("High Albania", photographs by Stan Sherer, Amherst College, Frost Library, March 1995.)

"The Creative Scientific Writing Workshops at BIRS," PIMS Magazine, Fall, 2004, 7-8.

Collaborator, with playwright and composer Ellen Maddow, on the mathematical music theater "Delicious Rivers" (LaMama Cafe, New York, January and February, 2006; Smith College, Northampton, October and November, 2006).

Exhibition Catalog, "Exhibition," photographs by Stan Sherer, essay by Marjorie Senechal, Hampshire College, February 2008.

Pasteur in Alais, a closet-drama, 2008,