Curriculum Vitae
Gabor Toth

Present Position:
Distinguished Professor, July 1, 2017.

Former Positions:
Full Professor, July 1998 – June 30, 2017.
Chair, Department of Mathematical Sciences, July 1995 – June 30, 2017.
Acting Associate Dean of the Faculty of Arts and Sciences, July 2002 – June 2003.
Director of the Graduate Mathematics Program, July 1995 - June 2002.
Associate Professor, July 1989 - June 1998.
Assistant Professor, July 1986 - June 1989.

Visiting Positions:
Visiting Assistant Professor, University of California, Berkeley, Dec. 1987 - Aug. 1988.
Visiting Assistant Professor, University of Illinois at Urbana-Champaign, Sept. 1985 - June 1986 (Special Year in Differential Geometry).
Visiting Assistant Professor, Ohio State University, Sept. 1983 - Aug. 1985.
Research Fellow, Mathematical Institute of the Hungarian Academy of Sciences, Sept. 1979 - Aug. 1983.

Short Term Research Positions:
TATA Institute for Fundamental Research, Bombay, India, Member, May 1993
Institute des Hautes Études Scientifiques, Bures-sur-Yvette, France, Member, Dec. 1991
The Institute for Advanced Study, Princeton, Member, May 1987 - Aug. 1987 *University of California, Berkeley*, June 1984 - Aug. 1984

Born: January 17, 1954.

Education:
Candidate degree for mathematical sciences (Academy of Sciences) Dec. 1980.
Ph.D. (Eötvös Loránd University) May 1979.
B.A. Eötvös Loránd University (pure mathematics) June 1977.

Prizes For Research In Mathematics:
Grünwald Prize, November, 1980 (Eötvös Loránd University for outstanding scholastic achievement).
Rényi Prize, 1977 (Bolyai János Mathematical Society to young mathematicians for outstanding research).

Fields of Interest:
Differential geometry, minimal immersions.
Convex geometry. Measures of symmetry.
Middle Egyptian grammar. Ancient Egyptian history and archaeology.
History of precolonial Africa.

Memberships:
American Mathematical Society
Egypt Exploration Society

Editorial Board:
Advances in Pure Mathematics.

Languages:
English, Chinese (Mandarin), Russian, French, Hungarian (native), Middle Egyptian.

List of Publications

Books:

1. *Foundations of Calculus* (in preparation)
2. *Measures of Symmetry for Convex Sets and Stability*, Springer, New York, 2015.
3. *Introduction to Middle Egyptian Grammar through Ancient Writings*, Linus Learning, New York, 2013.
4. *Glimpses of Algebra and Geometry, Second Edition*, Springer, New York, 2002.
5. *Finite Möbius Groups, Spherical Minimal Immersions, and Moduli*, Springer, New York, 2002.
6. *Glimpses of Algebra and Geometry*, Springer, New York, 1998. Japanese translation of the first edition by Y. Kanie, Springer, Tokyo, 2000.
7. *Harmonic Maps and Minimal Immersions through Representation Theory*, Academic Press, Boston, 1990.
8. *Harmonic and Minimal Maps with Applications in Geometry and Physics*, Wiley, New York, 1984.

Research Articles:

The articles below are downloadable in pdf format from the web site:
http://math.camden.rutgers.edu/faculty/gabor-toth/

1. *Minimal SU(2)-orbits in spheres with and without isotropy* (in preparation)
2. (with Q. Guo) *Dual mean Minkowski measures and the Grünbaum conjecture for affine diameters*, Pacific Math. J. (2017) (to appear).

3. (with K. Miura) *On the moduli of isotropic and helical minimal immersions between spheres*, Michigan Math. Journal (2017), DOI 10.1307/mmj/1496822425 (to appear).
4. (with Q. Guo) *Dual mean Minkowski measures of asymmetry for convex bodies,* Sci China Math 59 (2016) 1383-1394, DOI 10.1007/s11425-016-5121-x.
5. *On the space of orthogonal multiplications in three and four dimensions and Cayley's nodal cubic*, Contributions to Algebra and Geometry 57 (2016) 407-439, DOI 10.1007/s13366-015-0269-z.
6. *Minimal simplices inscribed in a convex body*, Geometriae Dedicata, Vol. 170, 1 (2014) 303-318.
7. *Notes on Schneider's stability estimates for convex sets*, J. of Geom. Vol. 104, 3 (2013) 585-598.
8. *Simplicial slices of the space of minimal SU(2)-orbits in spheres*, Contributions to Algebra and Geometry, 54 (2013) 683-699.
9. (with M. McClain) *The Stela of Qema-Mar and His Household,* Journal of Archaeology of the Zagreb Museum, VAMZ, 3. S., XLV (2012) 553-563.
10. *A measure of symmetry for the moduli of spherical minimal immersions* Geometriae Dedicata 160, 1 (2012) 1-14.
11. *Fine structure of convex sets from asymmetric viewpoint,* Contributions to Algebra and Geometry, Vol. 52, 1 (2011) 171-189.
12. *On the structure of convex sets with symmetries,* Geometriae Dedicata, 143 (2009) 69-80.
13. *Convex sets with large distortion,* J. of Geom. Vol 92 (2009) 174-192.
14. *Asymmetry of convex sets with isolated extreme points,* Proc. Amer. Math. Soc. Vol 137, No. 1 (2009) 287-295.
15. *On the structure of convex sets with applications to the moduli of spherical minimal immersions,* Contributions to Algebra and Geometry, Vol. 49, No. 2 (2008) 491-515.
16. *On the shape of the moduli of spherical minimal immersions*, Trans. Amer. Math. Soc., Vol. 358, No. 6 (2006) 2425-2446.
17. *Spherical minimal immersions with prescribed codimension*, Geometriae Dedicata, 113 (2005) 145-163.
18. *Critical points of the distance function on the moduli space for spherical eigenmaps and minimal immersions*, Contributions to Algebra and Geometry, Vol. 45, No. 1 (2004) 305-328.
19. *Simplicial intersections of a convex set and moduli for spherical minimal immersions*, Michigan Math. Journal, Vol.52 (2004) 341-359.
20. *Moduli for spherical maps and minimal immersions of homogeneous spaces*, Journal of Lie Theory, Vol. 12, No. 2 (2002) 551-570.
21. *Operators on moduli for spherical maps of homogeneous spaces*, International Journal of Mathematics, Vol. 13, No. 8 (2002) 821-843.
22. *Minimal Immersions of Spheres and Moduli*, Period. Math. Hung. 40 (2) (2000) 211-227.

23. *Infinitesimal rotations of isometric minimal immersions between spheres*, Amer. J. Math., 122 (2000) 117-152.
24. (with W. Ziller) *Spherical minimal immersions of the 3-sphere*, Comment. Math. Helv. 74 (1999) 1-34.
25. *Universal constraints on the range of eigenmaps and spherical minimal immersions*, Trans. Amer. Math. Soc. Vol. 351, No. 4 (1999) 1423-1443.
26. *Eigenmaps and the space of minimal immersions between spheres*, Indiana Univ. Math. J. Vol.46, No.2 (1997) 637-658.
27. *New construction for spherical minimal immersions*, Geometriae Dedicata, 67 (1997) 187-196.
28. (with H. Gauchman) *Fine structure of the space of spherical minimal immersions*, Trans. Amer. Math. Soc. Vol.348, No.6 (1996) 2441-2463.
29. (with F. Hiai and D. Petz) *Curvature in the geometry of canonical correlation*, Studia Sci. Math. Hungar. 32 (1996) 235-249.
30. (with H. Gauchman) *Normed bilinear pairings for semi-Euclidean spaces near the Hurwitz-Radon range*, Results in Mathematics, Vol.30 (1996) 276-301.
31. *On the structure of the moduli space of harmonic eigenmaps*, J. Math. Soc. Japan, Vol.47, No.3 (1995) 503-522.
32. *Quadratic eigenmaps between spheres*, Geometriae Dedicata, 56 (1995) 35-52.
33. (with H. Gauchman) *Real orthogonal multiplications of codimension two*, Nova Journal of Algebra and Geometry, Vol.3, No.1 (1994) 41-72.
34. (with H. Gauchman) *Constructions of harmonic polynomial maps between spheres*, Geometriae Dedicata, 50 (1994) 57-79.
35. *Operators on eigenmaps between spheres*, Compositio Mathematica, 88 (1993) 317-332.
36. *Rigidity of minimal submanifolds in terms of higher fundamental forms*, Michigan Math.J., Vol.40, No.3 (1993) 493-505.
37. (with D. Petz) *The Bogoliubov inner product in quantum statistics*, Letters in Math. Physics, 27 (1993) 205-216.
38. *Mappings of moduli spaces for harmonic eigenmaps and minimal immersions between spheres*, J. Math. Soc. Japan, Vol.44, No.2 (1992) 179-198.
39. *On the number of rigid minimal immersions between spheres*, in `The Problem of Plateau' (Douglas-Rado Memorial Volume), ed. by Th.M. Rassias, World Scientific, Singapore (1992) 327-335.
40. *Moduli spaces of polynomial minimal immersions between complex projective spaces*, Michigan Math. J., Vol.37, No.3 (1990) 385-396.
41. (with D. Barbasch and J. Glazebrook) *Harmonic maps between complex projective spaces*, Geometriae Dedicata, 33 (1990) 37-50.
42. (with S.I. Goldberg) *Addendum to: Torsion and deformation of contact metric structures on 3-manifolds*, Tôhoku Math. J., Vol.41, No.2 (1989) 259-262.
43. (with S.I. Goldberg and D. Perrone) *Curvature and torsion of contact Riemannian three-manifolds*, Proceedings of the Conference in honor of M. DoCarmo, Pitman Press, (1989) 199-210.

44. *Harmonic polynomial maps between spheres and complex projective spaces*, in `Geometry and Topology', ed. By G.M. Rassias and G.M. Stratopoulos, World Scientific, Singapore (1989) 306-314.
45. (with S.I. Goldberg) *On closed surfaces immersed in E3 with constant mean curvature*, J. London Math. Soc., (2) 38 (1988) 333-340.
46. (with S.I. Goldberg and D. Perrone) *Contact three-manifolds with positive generalized Tanaka-Webster scalar curvature*, Comptes Rendus Mathematiques, Acad. Sci. Canada, Vol. X, No. 6 (1988) 255-260.
47. *On classification of quadratic harmonic maps of S^3*, Proc. Amer. Math. Soc., Vol.102, No.1 (1988) 174-176.
48. (with S.I. Goldberg and D. Perrone) *Curvature of contact Riemannian threemanifolds with critical metrics*, III International Symposium on Differential Geometry, Peniscola, Springer Lecture Notes, 1988.
49. *Classification of quadratic harmonic maps of S^3 into spheres*, Indiana U. Math. J., Vol.36, No.2 (1987) 231-239.
50. (with F. Kamber and Ph. Tondeur) *Transversal Jacobi fields for harmonic foliations*, Michigan Math. J., 34 (1987) 261-266.
51. (with S.I. Goldberg) *Torsion and deformation of contact metric structures on 3manifolds*, Tôhoku Math. J., Vol.39, No.3 (1987) 365-372.
52. *On classification of orthogonal multiplications a la DoCarmo-Wallach*, Geometriae Dedicata, 22 (1987) 251-254.
53. (with Ph. Tondeur) *On transversal infinitesimal automorphisms for harmonic foliations*, Geometriae Dedicata, 24 (1987) 229-236.
54. (with S.I. Goldberg) *Remarks on Wente's example of an immersed torus in E^3*, Differential Geometry and its Applications, Proceedings of the Conference, Brno (1986) 71-78.
55. *On nonrigidity of harmonic maps into spheres*, Proc. Amer. Math. Soc., Vol.94, No.4 (1985) 711-714.
56. *On naturally reductive homogeneous spaces harmonically embedded into spheres*, J. London Math. Soc., (2) 29 (1984) 175-180.
57. *Flexible harmonic maps into spheres*, in `Global Riemannian Geometry', ed. by T.J. Willmore and N.J. Hitchin, E. Horwood Series, Halsted Press, John Wiley and Sons (1984) 156-167.
58. (with G. D'Ambra) *Parameter space for harmonic maps of constant energy density into spheres*, Geometriae Dedicata 17 (1984) 61-67.
59. (with G. D'Ambra) *Extrinsic rigidity for equivariant harmonic maps into spheres*, Boll. U.M.I. (6) 3-A (1984) 249-255.
60. (with G. D'Ambra) *On infinitesimal and local rigidity of harmonic maps between spheres defined by spherical harmonics*, Annali di Mat. (IV) Vol. CXXXVI (1984) 25-33.
61. *Toroidal Lie group actions on compact Riemannian manifolds and their relations to the fibering problem*, Banach Center Publications, Vol. 12, PWN-Polish Sci. Publ. (1984) 233-240.

62. (with A. Lee) *On variation spaces of harmonic maps into spheres*, Acta Sci. Math. 46 (1983) 127-141.
63. *Construction des applications harmoniques d'un tore dans la sphère*, Annals of Global Analysis and Geometry, Vol.1, No.2 (1983) 105-118.
64. *Sur les espaces fibrès différentiables munis des groupes de transformations de Lie opérant transversalement aux fibres*, Rendiconti di Mat. (1) Vol.2, Series VII (1982) 129-136.
65. *On rigidity of harmonic mappings into spheres*, J. London Math. Soc., (2) 26 (1982) 475-486.
66. *Harmonic submersions onto nonnegatively curved manifolds*, Acta Math. Acad. Sci. Hungar. 39 (1-3) (1982) 49-53.
67. *On harmonic maps into locally symmetric Riemannian manifolds*, in `Symposia Mathematica', Vol. XXVI, Academic Press, New York (1982) 69-94.
68. *On variations of harmonic maps into spaces of constant curvature*, Annali di Mat. (IV) Vol. CXXVIII (1981) 389-399.

Talks, Conferences, Meetings:

1. CIMAT, Mexico, Distinguished Professor Guest, series of four talks, December 2016.
2. George Mason University, Fairfax, Virginia, colloquium talk, October 2015.
3. Rutgers University Math/CS seminar talk, April, 2015.
4. AMS Meeting, Georgetown University, Washington D.C.; talk in the Special Session: Convexity and Combinatorics, March 2015.
5. Suzhou University of Science and Technology, China; two seminar talks and one colloquium talk, January, 2015 (supported by the Chinese NSF – No. 11271282).
6. Tsinghua University, Beijing, China, seminar talk, March 2014.
7. Academia Sinica, Taiwan, talk at the Geometry Seminar, January 2014.
8. Xiamen University, China, two seminar talks, January 2014.
9. AMS Meeting, George Washington University, Washington D. C.; talk in the Special session: Convexity and Combinatorics, March 2012.
10. AMS Meeting, University of Virginia, Richmond, Virginia; talk in the Special Session: Convexity and Combinatorics, November 2010.
11. Rutgers University Math/CS seminar talk, October, 2010.
12. Beijing Capital Normal University, colloquium talk, December, 2009.
13. Rutgers University, Newark, colloquium talk, September, 2005.
14. Nankai University, China, invitation and discussion with Shiing-Shen Chern, August, 2003.
15. Conference on Hyperbolic Geometry, conference talk, Hungary, May 2002.
16. Rutgers University, New Brunswick, talk at the Lie Group Seminar, April, 2001.
17. International Congress on Differential Geometry; conference talk, September 2000, Bilbao, Spain,
18. Colloquium on Differential Geometry; invited address, Debrecen, Hungary, July 2000.

19. Principal speaker at the conference ``Minimal surfaces, moduli, and geometric structures'' in Tokyo Metropolitan University, Tokyo, September, 1999.
20. Keio University, Tokyo; colloquium talk, September, 1999.
21. Sophia University, Tokyo; colloquium talk, September, 1999.
22. South Jersey Mathematics Alliance, Rutgers University, April, 1997.
23. Geometry Center, University of Minnesota; colloquium talk, May 1996.
24. Howard University, Washington D.C.; colloquium talk, June 1993.
25. University of Lyngby, Denmark; colloquium talk, May 1992.
26. Institute des Hautes Etudes Scientifiques, Bures-sur-Yvette, France; seminar talk, December 1991.
27. Istituto Matematico, Universita di Cagliari, Italy; 6 lectures in November 1991.
28. Universita di Lecce, Italy; colloquium talk in November 1991.
29. Mathematical Institute of the Hungarian Academy of Sciences; seminar talk, October 1991.
30. Eötvös Loránd University, Budapest; 4 seminar talks, October 1991.
31. Austro-Hungarian workshop on differential geometry; seminar talk, October 1991.
32. AMS Meeting, University of Maryland; talk in the Special Session: Elliptic equations and geometry (organized by D. DeTurck and J. Kazdan), April 1988.
33. Emory University, Atlanta; colloquium talk, March 1988.
34. University of California, Berkeley; seminar talk at the PDE-Seminar of CordesKato-Protter, March 1988.
35. University of California, Berkeley; seminar talk at the Differential Geometry Seminar of W.-Y. Hsiang-Kobayashi, February 1988.
36. CBMS-NSF Conference at Eastern Illinois University on `Rigidity in several complex variables' by Siu, Supported by NSF, August 1988.
37. Seminar talk at Rutgers University, New Brunswick; November 1987.
38. University of Oklahoma, Norman; colloquium talk (Clarence Karcher Foundation), November 1987.
39. Rutgers Seminar (2 talks), April 1987.
40. AMS Annual Meeting (831) San Antonio, Texas; talk in the Special Session: Recent results in gauge theory and differential geometry, January 1987.
41. AMS Meeting (832) New Jersey Institute of Technology, Newark; talk in the Special Session: Recent results in Riemannian geometry, April 1987.
42. Seminar talk at Rutgers University, New Brunswick; March 1986.
43. Colloquium talk at University of Alabama; February 1986.
44. Seminar talk at the Geometry Seminar of the University of California, Berkeley; July 1984.
45. Visiting Professorship in Italy; colloquium talk in the Department of Mathematics of Universita di Cagliari, supported by a grant from the C.N.R., June 1983.
46. Winter School on Differential Geometry and Physics, Czechoslovakia, conference talks for 2 consecutive years, 1982-1983, sponsored by the Czechoslovak Academy of Sciences.
47. Global analysis and geometry; conference talk in Durham, England, supported by a grant from the Science and Engineering Research Council, July 1982.

48. University of Aberdeen, Scotland, colloquium talk, July 1982.
49. Visiting Professorship in Italy; colloquium talk in the Department of Mathematics of Universita di Cagliari, supported by a grant from the C.N.R., April 1982.
50. Harmonic map and invariant metrics; invited address at the conference, Rome, supported by the Istituto Nazionale, May 1981.
51. Summer school on complex analysis, Trieste; 2 seminar talks, supported by a grant from UNESCO, July 1980.
52. Global Analysis and geometry, conference talk, Garwitz, Germany, Oct. 1980.
53. Differential Geometry Semester at the Banach Center, Warsaw, invited lecturer, 6 talks, 1979.
54. Dynamical Systems Conference, Udine, Italy; conference talk, Sept. 1977.