

Curriculum Vitae

Meral Tosun
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Research Interest

Singularities in algebraic geometry: Resolution of singularities, Deformations of singularities, Topology of singularities, Invariants of singularities, Classification of singularities by Lie algebras. Toric geometry. Tropical geometry.

Education

PhD in mathematics : University of Aix-Marseille I, Marseille, France
Title : *Rational singularities of complex surfaces (March 6, 1998)*
DEA in mathematics : University of Paris VII, Paris, France
MSc in mathematics : Yıldız Technical University, Istanbul, Turkey (June 1991)
Title : *Linear difference equations and the hypergeometric equations*
BSc in mathematics : Marmara University. Istanbul-Turkey.

Research Experience

Associate professor, Galatasaray University, Istanbul, Turkey, January 2007-present
Postdoctoral fellowship, Instituto de Matematicas UNAM, Cuernavaca-Mexico, 2002-2004
Part-time research fellowship, Feza Gursey Institute, Istanbul-Turkey, 2000-2006
Post-doctoral fellowship, The Abdus Salam ICTP, Trieste-Italy, 1999-2000
Assistante professor, Yildiz Technical University, Istanbul, Turkey, 2001-2006
Research Assistant, Yildiz Technical University, Istanbul, Turkey, 1989-2001

Publications

1. *Singularites rationnelles des surfaces complexes*, Ph.D. Thesis, 1998.
2. *Arbres associes aux singularites rationnelles*, C. R. Acad. Sci. Paris, t.329, Serie I, pp.867-870, (1999).
3. *Tyurina components and rational cycles for rational singularities*, Turk. J. of Math.Vol. 23, no.3, 361-374, (1999).
4. *Combinatorics of rational surface singularities*, Comment. Math. Helv., 79, 582-604 (2004). Joint work with Le D. T.
5. *ADE Singularities, chambers and toric varieties*, The Proceeding of Soc. Math. De France, Seminaire et Congres, 10, 341-350, (2005).
6. *Classification of rational singularities of surfaces*, Int. J. of Pure and Appl. Math. (2007). Joint work with A. Ozkan and Z. Oer.
7. *Toric varieties associated with weighted graphs*, Int. Math. Forum, Vol. 2, no. 33-36, 1779-1793, (2007). Joint work with S. Altınok.

8. *Semi-universal deformation of some simple elliptic singularities*, C. R. Acad. Sci. Paris, Ser. I 345 (2007). Joint work with K. Nakamoto.
9. *Some surface singularities obtained via Lie algebras*, Singularities in geometry and topology, World Scientific Publishing Co. Pte. Ltd, (2006).
10. *Generators for semigroup of Lipman*, Bull. Braz. Math.Soc, New series, 39 no. 1-13, (2008). Joint work with S. Altınok.
11. *Invariants of open books of links of surface singularities*, Studia Sci. Mat. Hungarica, 48-1, (2011), pp. 135-144. Joint work with A.Nemethi.
12. *Simple singularities and simple Lie algebras*, TWMS Jour. Pure Appl. Math. V.2, N.1, (2012), pp. 97-111. Joint work with Le D. T.
13. *Simple elliptic singularities and generalization of Slodowy slices*, J. of Algebra, V.376, pp.139-151, (2013). Joint work with K. Nakamoto.
14. *Nonisolated forms of rational triple points via Newton Polygon*, To appear in Rocky Mountain J. Math. (2014). Joint work with A. Altıntaş-Sharland and G. Cevik.
15. *Root systems, Quasi-determinantal singularities and Linear Free Divisors*, (joint work with A.Sharland and K.Nakamoto). Submitted for publication.

Invited Talks

1. Topics in Geometry, IMBM, Istanbul, May 2015
2. Workshop in Singularities, Yucatan University, Merida, Mexico. December 2014
3. Geometry Topology Seminars at Rochester University, USA. November 2014
4. Algebraic Geometry Seminars at Columbia University, New York, USA. November 2014
5. Women in Mathematics in Turkey, Gebze Institute of Technology, Turkey. May 2014
6. Tropical Geometry in Europe. IMBM, Istanbul. May 2014
7. Complex-algebraic aspects of tropical geometry. Lausanne, Switzerland. March 2014
8. Colloquium in Institute of Technology. Gebze, Turkey. February 2014
9. Middle East Technical University (ODTU). Ankara, Turkey. November 2013
10. Singularities Summer School. Fes, Morocco, September 2012
11. METU Northern Cyprus Campus. Workshop on Singularities, April 2012
12. Istanbul Technical University, Math. Colloquium. Istanbul. February 2012
13. Abant İzzet Baysal University, Math. Colloquium. Bolu, Turkey. November 2010
14. Fatih University, Math. Colloquium. Istanbul, Turkey. October 2010
15. Antalya Algebra Days, Turkey. May 2010
16. Galatasaray University, Faculty of Science and Arts. Istanbul, Turkey. March 2010
17. Mimar Sinan Fine Arts University, Math. Colloquium. Istanbul, Turkey. November 2009
18. International School and Conference on Foliations, Dynamical Systems, Singularity - Theory and Perverse Sheaves, Samarkand State University, Samarkand, Uzbekistan. October 2009
19. Bogazici University, Istanbul, Turkey. April 2009
20. Tata Fundamental Research Institute, Mumbai, India. February 2009
21. Izmir Algebraic Geometric Topology Days, 9 Eylül University, Izmir, Turkey. January 2009
22. Koç University, Istanbul, Turkey. December 2008
23. Sabancı University, Istanbul, Turkey. November 2008
24. Alfred Renyi Institute, Budapest, Hungary. October 2008
25. Koç University, Istanbul, Turkey. September 2008
26. Tokyo University of Sciences, Japan. August 2008
27. Fudan University, Shanghai, China. January 2008
28. Workshop on Geometry and Topology of Singularities, UNAM-Cuernavaca, Mexico. January 2007

29. 9th International Workshop on Real and Complex Singularities, Sao-Carlos, Brasil. July 2006
30. Advanced school and workshop on singularities in geometry and topology, The Abdus Salam ICTP, Italy. September 2005
31. Antalya Algebra Days. International conference, Antalya, Turkey. May 2005
32. Istanbul Technical University, Istanbul, Turkey
33. Workshop on topology of hypersurfaces, Tokyo Metropolitan University, Japan. Sept. 2004
34. Middle East Technical University (ODTU), Ankara, Turkey. April 2003
35. XXXV Congreso Nacional de la Sociedad Matematica Mexicana. Durango, Mexico.
36. Coloquio de geometria e algebraica. CIMAT, Guanajuato. Mexico. October 2002
37. Bilkent Algebra Day. Bilkent University. Ankara, Turkey. January 2002
38. Antalya Algebra Days. International conference. Antalya, Turkey. May 2001
39. Bilkent Algebra Day. Bilkent University. Ankara, Turkey. March 2001
40. Colloquium in Bilkent University. Ankara, Turkey. March 2001
41. Colloquium in Bosphorus University. Istanbul, Turkey. December 2000
42. Geometry-Topology semester. Feza Gursey Institute. Istanbul, Turkey. May 2000
43. Algebraic geometry seminar. The Abdus Salam ICTP. Trieste, Italy. September 1998
44. Congres International sur les singularites. Universite St.Quentin. Versailles, France. December 1996.

Short courses-Seminars

1. *Singularities and Lie Algebras*, (short-course), La Laguna University, Tenerife, July 2015.
2. *Riemann-Roch Theorem*, (short-course), Feza Gursey Inst. Istanbul, Turkey. January 2005
3. *Bezout's Theorem*, (short-course), UNAM, Unidad Cuernavaca. Mexico. November 2003
4. *Singularities of curves and surfaces*, (short-course), Yıldız Technical Univ. Istanbul. April 2001
5. *Geometry of Rational Singularities*, K-theory and Algebraic Topology colloquium. The Abdus Salam ICTP. Trieste, Italy. March 1999
6. *Combinatorics of singularities of surfaces*, Topology seminar. Universite d'Aix Marseille I. Marseille, France. March 1997

Teaching Experience

Sabancı University. Graduate level
 Galatasaray University. Undergraduate level/Graduate level
 Yıldız Technical University. Undergraduate/Graduate level
 University of Aix-Marseille I. Undergraduate level
 Yeditepe University. Undergraduate level
 Nesin Mathematics Village. Graduate-Undergraduate levels.

Subjects thoughts : *Geometry, Complex Analysis, Introduction to Algebraic Geometry, Singularities of complex surfaces, Algebraic curves, Varieties and Algorithms, Linear Algebra, Advanced Linear Algebra, Algebra, Calculus, Introduction to Real Analysis, Differential Geometry, Groups and Geometry, Toric Geometry, Ordinary Differential Equations, Singularities of curves and surfaces.*

Post-doctoral Students

- Dieter Van Der Bleeken, 2011, by TUBITAK 1001 Research Grant.
- Richard Gonzalez, 2012, by TUBITAK 1001 Research Grant.
- Zafeirakis Zafeirakopoulos, 2015, by Tubitak 1001 Research Grant.

Graduate Students (MSc Thesis)

1. B.Karadeniz, Jet schemes and singularities, On-going, Galatasaray University.
2. E.Balçı, The kite for plane curves after Popescu-Pampu, On-going, Galatasaray University.
3. B. Ötüş, Tropical hypersurfaces in Groebner fan, 2015, Koç University (co-advisor with T.Etgü)
4. A. Gündüz, Quivers and Root Systems, 2014, Marmara University (co-advisor with U.Tekir).
5. G. Çevik, Resolution of some non-isolated hypersurface singularities, 2011, Koç University (co-advisor with T.Etgu).
6. E.Bilgin, On a theorem of Katz, 2009, Istanbul Technical University, (co-advisor with V.Erdogdu).
7. A.Altıntaş, Geometry of toric varieties, 2006, Yıldız Technical University.

Undergraduate Students (BSc Thesis)

1. R.M. Gül, *Tropical Decomposition of Young Lattices*, 2015, Galatasaray University.
2. D. Tören, *Hilbert Basis of a semigroup*, 2015, Galatasaray University.
3. E.Koçak, *Low dimensional Lie algebras*, 2014, Galatasaray University.
4. E.Dal, *Explicit equations of some surfaces by SINGULAR*, 2014, Galatasaray University, (co-advisor with A.Altıntaş-Sharland)
5. G.Bulut, *Lojasiewicz Invariant for plane curves*, 2013, Galatasaray Univ (co-advisor with E.Bilgin)
6. B.Karadeniz, *Toric modification*, 2013, Galatasaray University.
7. İ.Kaspi, *Singularities of tropical hypersurfaces* 2012, Galatasaray University.
8. C.Tozlu, *Free divisors in algebraic geometry*, 2012, Galatasaray University.
9. Z.Topçu, *A brief introduction to Tropical Geometry*, 2011, Galatasaray University.
10. H.Ergün, *Clasification of Lie algebras of small dimension*, 2011, Galatasaray University.
11. E.Yeni, *Local properties of plane curves*, 2006, Yıldız Technical University.

Some of the Scientific Organizations

- Summer school for women in mathematics, Bogazici University, Istanbul, Turkey, August 2013.
- Summer school for women in mathematics, Bilkent University, Ankara, Turkey, August 2012.
- Short courses on *Functoriality and Correspondence*, Galatasaray University, Istanbul, Nisan 2011.
- Cimpa-Tubitak Summer School and Conference on *Commutative Algebra and Applications to Combinatorics and Algebraic Geometry*, Galatasaray University/Feza Gursey Enstitute, İstanbul, September 2010.
- GTEM/TUBITAK Summer School on *Geometry and Arithmetic around Galois Theory*, Galatasaray University, Istanbul, Turkey, June 2009.
- Cimpa Summer School on *Arrangements, Local systems and Singularities*. Galatasaray University. Istanbul-Turkey. June 2007.
- Short courses, *History of mathematics I,II*. Speaker: R.P. Langlands. Yildiz Technical University. Istanbul-Turkey. June 2003 and May 2004.
- Workshop on *Singularity theory*. Feza Gursey Institute. Istanbul-Turkey. June 2001.

Grants

1. Research Fund of Galatasaray University: *Geometry of elliptic surface singularities obtained by Lie algebra*, 2007-2009.
2. *Associate Membership*, The Abdus Salam ICTP, Trieste, Italy, 2009-2014
3. Turkish Scientific and Technological Research Council (TUBITAK), 1001 Research grant: *Rational Singularities of Surfaces, Lie algebras and quivers*, 2010-2013.
4. Research Fund of Galatasaray University: *Surface singularities and Newton polygon*, 2011-2013.
5. Research Fund of UNAM-Mexico, *Singularidades locales de superficies complejas*, 2011-2014. Researcher.
6. TUBITAK-CNRS Bilateral Cooperation: *Topology of singularities of complex surfaces*, 2013-2015.
7. Turkish Scientific and Technological Research Council (TUBITAK), 1001 Research grant: *Equations defining rational singularities and their invariants*, 2014-2017.

Editor/Reviewer

ZentralBlat

Matematik Dünyası (lasted on August 2014)

İTÜ Fen Bilimleri Dergisi

Some other Scientific Visits (for at least one month)

Tokyo Metropolitan University, Japan.

Columbia University, United States of America.

Yamanashi University, Japan.

Tata Institute of Fundamental Research, India.

Alfred Renyi Institute, Hungary.

Fudan University, China.

Languages

Fluent in Turkish, English, French. Intermediate in Spanish.