

Curriculum Vitae

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Education

- PhD Mathematics, Central European University (CEU), Budapest, Hungary, 2010-2015.
- MSc Mathematics, Eötvös Loránd Tudományegyetem (ELTE), Budapest, Hungary, 2008-2010.
- BS Mathematics, University of Iceland, Reykjavík, Iceland, 2005-2008.
- Gymnasium, Science line, Menntaskólinn Hraðbraut, Reykjavík, Iceland, 2003-2005.

Thesis

- *The geometric genus and Seiberg–Witten invariant of Newton nondegenerate surface singularities*, Central European University, Advisor: Némethi András, defended December 1, 2015, with summa cum laude, arXiv:1601.02572.

Employment

- December 2018-: Postdoc at Universidad Nacional Autónoma de México, Cuernavaca.
- April 2018-November 2018: Juan de la Cierva Postdoc Fellow at Basque Center for Applied Mathematics.
- March 2016-March 2018: ERC Postdoc Fellow at Basque Center for Applied Mathematics.
- September 2013-February 2016: ERC postdoctoral fellow at the Alfréd Rényi Institute for Mathematics in Budapest.
- Summer 2007: Writing of educational material on solving differential equations in Maple as well as teaching material in elementary linear algebra for the Science Institute of the University of Iceland.

Published articles

- On ideal filtrations for Newton nondegenerate surface singularities, arXiv:1911.00095, to be published in the proceedings of the conference *Némethi60: Geometry and Topology of Singularities*.
- Joint with Pablo Portilla Cuadrado, Mixed tête-à-tête twists as monodromies associated with holomorphic function germs, accepted for publication in *Geometriae Dedicata*.
- The boundary of the Milnor fiber of the singularity $f(x, y) + zg(x, y) = 0$, *European Journal of Mathematics* (2020) doi:10.1007/s40879-019-00393-w.
- Joint with András Némethi, The geometric genus of hypersurface singularities, *J. Eur. Math. Soc. (JEMS)* 18, No. 4, 825-851 (2016).
- The Milnor fiber of the singularity $f(x, y) + zg(x, y) = 0$. *Rev. Mat. Complut.* (2016) 29: 225. doi:10.1007/s13163-015-0179-5.

Manuscripts in preparation

- Newton nondegenerate Weil divisors in toric varieties, joint with András Némethi.
- Harmonic functions in local tropical geometry.
- Local tropicalization and analytic invariants of singularities.

Conference talks

- The geometric genus and Seiberg–Witten invariant of Newton nondegenerate Weil divisors in a toric space, Workshop on Topological and Analytical Methods in Singularity Theory, CIMAT, November 14, 2019, Guanajuato, Mexico.
- The boundary of the Milnor fiber of the singularity $f(x, y) + zg(x, y) = 0$, Lipschitz Geometry of Singularities, October 23, 2018, Oaxaca, Mexico.
- The geometric genus and Seiberg–Witten invariant of Newton nondegenerate surface singularities, 4° Congreso de Jóvenes Investigadores, September 4-8, 2017, Valencia, Spain.
- The geometric genus and Seiberg–Witten invariant of Newton nondegenerate surface singularities, Singularities, September 25–October 1, 2016, Oberwolfach, Germany.
- The geometric genus of hypersurfaces, 13th International Workshop on Real and Complex Singularities Celebrating the 60th birthday of María del Carmen Romero Fuster, July 27–August 1, 2014, São Carlos, Brazil, slides.

Seminar presentations

- Tropical intersection and singularity theory, Seminar on Geometry and Topology, Institute of Mathematics, Vietnam Academy of Science and Technology, May 21, 2020, Hanoi, Vietnam.
- Divisores Weil Newton no degenerados en variedades tóricas, Seminario de Álgebra Conmutativa y Geometría Algebraica, CIMAT, May 6, 2019, Guanajuato, Mexico.
- The boundary of the Milnor fiber of the hypersurface singularity $f(x, y) + zg(x, y) = 0$, Séminaire Singularités, FRUMAM, Université Aix-Marseille, November 23, 2017, Marseille, France.
- The boundary of the Milnor fiber of the hypersurface singularity $f(x, y) + zg(x, y) = 0$, Seminar, Géométrie des espaces singuliers, Laboratoire Paul Painlevé, December 13, 2016, Lille, France.
- The geometric genus and Seiberg–Witten invariant of Newton nondegenerate surface singularities, Algebraic Geometry and Differential Topology Seminar, Alfréd Rényi Institute of Mathematics, October 16, 2015, Budapest, Hungary.
- The geometric genus of hypersurface singularities, Algebraic Geometry and Differential Topology Seminar, Alfréd Rényi Institute of Mathematics, March 14, 2014, Budapest, Hungary.

Visits

- Hanoi, Vietnam, March 1-29, 2020, invited by Le Quy Thuong at VIASM.
- Marseille, France, November 21-25, 2017, invited by Anne Pichon at Institut de Mathématiques de Marseille.
- Lille, France, December 11-15, 2016, invited by Patrick Popescu-Pampu at Le laboratoire de mathématiques Paul Painlevé, Université de Lille.
- Budapest, Hungary, April 17-23, 2016, invited by András Némethi at the Alfréd Rényi Institute of Mathematics.

Learning seminar talks

- Introduction to Heegaard–Floer homology, Seminario de Geometría Algebraica y Singularidades, BCAM, May 5 and 26, 2017, Bilbao, Spain.
- Newton nondegenerate surface singularities, Seminario de Geometría Algebraica y Singularidades, BCAM, November 11, December 1, 2016, Bilbao, Spain.
- Introduction to normal surface singularities, Seminario de Geometría Algebraica y Singularidades, BCAM, October 21, 2016, Bilbao, Spain.
- The spectrum of hypersurface singularities, Seminario de Geometría Algebraica y Singularidades, BCAM, May 2016, Bilbao, Spain.

- Mixed Hodge structures on cohomologies of smooth varieties, Singularity theory and low dimensional topology seminar, Alfréd Rényi Institute of Mathematics, March 19 and 26, 2013, Budapest, Hungary.
- Basic Hodge theory, Singularity theory and low dimensional topology seminar, Alfréd Rényi Institute of Mathematics, November 29 and December 6, 2012, Budapest, Hungary.

Conferences attended

- Workshop on Topological and Analytical Methods in Singularity Theory, CIMAT, Guanajuato, Mexico, November 4-15, 2019.
- Tropical Methods in Real Algebraic Geometry Casa Matemática Oaxaca, Oaxaca, Mexico, September 8-13, 2019.
- Non-Isolated Singularities and derived Geometry, A celebration of the 60th birthday of David Massey, UNAM, Cuernavaca, Mexico, July 29 - August 3, 2019.
- 4th meeting on singularities Brazil-Chile-Mexico, Universidad de Talca, Talca, Chile March 11-15, 2019.
- Lipschitz Geometry of Singularities, Casa Matemática Oaxaca, Oaxaca, Mexico. October 21-26, 2018.
- 15th International Workshop on Real and Complex Singularities, Universidade de São Paulo, Campus São Carlos, São Carlos, Brazil, July 22-28, 2018,
- 4º Congreso de Jóvenes Investigadores, Real Sociedad Matemática Española, Universitat de València, Valencia, Spain, September 4-8, 2017.
- A Panorama on Singular Varieties: A conference to celebrate Lê Dũng Tráng's 70th Birthday, IMUS, Sevilla, Spain, February 7-10, 2017.
- Singularities, Oberwolfach, Germany, September 26-30, 2016.
- Conference of the Belgian, Royal Spanish and Luxembourg Mathematical Societies, Logroño, Spain, June 6-8, 2016.
- Algebra, Geometry and Topology of Singularities, Galatasaray University, Istanbul, Turkey May 8-12, 2016.
- Local and global Invariants of Singularities, En l'honneur de Jean-Paul Brasselet à l'occasion de son 70ème anniversaire, CIRM, Luminy, France, February 23-27, 2015.
- Workshop on Singularities in geometry, topology, foliations and dynamics 2014, A celebration of the 60th birthday of Pepe Seade, Universidad Autónoma de Yucatan, Mérida, Mexico, December 8-19, 2014.
- 13th International Workshop on Real and Complex Singularities, Celebrating the 60th birthday of María del Carmen Romero Fuster, ICMC, São Carlos, Brazil, July 27-August 1, 2014.
- Algebra and Geometry and Topology of Singularities, On the occasion of the 60th birthday of I. Luengo, La Cristalera, Miraflores de la Sierra, Spain, September 9-13, 2013.
- Singularities in geometry and applications III, ICMS, Edinburgh, UK, September 02-06, 2013.
- Geometry and topology of smooth 4-manifolds, Max Planck Institute for Mathematics, Bonn, Germany, June 3-7, 2013.
- Geometry and topology of complex singularities, CIRM, Luminy, France, April 15-19, 2013.
- Conference on singularities and geometry-topology in honour of Sabir M. Gusein-Zade with occasion of his 60th birthday, El Escorial, Madrid, Spain, October 10-16, 2010.

Schools attended

- Introduction To Geometric Analysis: The Atiyah-Singer Index Theorem, BCAM-UPV/EHU, Bilbao, Spain, June 5-23, 2017.
- Deformations in Turin, University of Turin, Turin, Italy, July 5-8, 2017.
- Workshop on Algebra, Geometry and Topology of Singularities, Gebze Technical University, Istanbul, Turkey, May 2-7, 2016.

- School on Singularity theory in topology, geometry and foliations, Instituto de Matemáticas (Unidad Cuernavaca) of the Universidad Nacional Autónoma de México (UNAM), November 24-December 5, 2014.
- Moduli and Automorphic forms, IRTG and Alfréd Rényi Institute of Mathematics, Budapest, Hungary, August 25-30, 2014.
- Applications of étale cohomology, Alfréd Rényi Institute of Mathematics, Budapest, Hungary, June 16-20, 2014.
- New aspects on Singularity Theory, ICMAT, Madrid, Spain, September 16-27, 2013.
- Topology of singularities, University of Mainz, Mainz, Germany, September 19-23, 2011.
- Singularities: algebra, geometry and applications, Institute of Mathematics of the National Academy of Sciences of Ukraine and Kiev National Taras Shevchenko University, Kiev, Ukraine, August 8-19, 2011.
- School on D-modules and applications in Singularity Theory, CSIC, ICMAT and IMUS, Sevilla, June 20-25 and Madrid June 27-July 2, Spain, 2011.

Teaching Experience

- Problem sessions in algebraic topology, University of the Basque Country, UPV/EHU, Spain, March 2017.
- Teaching Assistant, Real Analysis, Weekly exercise sessions and correction of problems, University of Iceland, Iceland, Spring 2008.
- Teaching Assistant, Analysis IIIB, Weekly exercise sessions and correction of problems, University of Iceland, Iceland, Fall 2007.

Misc

- Award for Advanced Doctoral Students, CEU, Budapest, Hungary, academic year 2012/2013.
- Second honorable mention in the Schweitzer Miklós Memorial Competition 2008, Budapest, Hungary.
- Participant in International Mathematical Olympiad, 3 points, July 8-19, 2005, Mérida, Mexico.
- On Honorary List of students academic year 2004/2005, Hraðbraut Gymnasium, Reykjavík, Iceland.

Software

- Sage An implementation of Neumann's plumbing calculus in Sage. Ticket #26945 on the trac server.
- lattice A program that calculates the root and Euler characteristics of lattice cohomology defined by Némethi. Written in C, available on author's webpage.
- Oka A collection of functions related to surface singularities, among them an implementation of Oka's algorithm for the resolution of Newton nondegenerate hypersurfaces. Written in PARI/GP, available on author's webpage.

Languages

- Icelandic, native,
- English, fluent,
- Spanish, conversational,
- Danish, Hungarian, less than fluent.