

Resume

Personal Details

Name: Lars Kastner
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Education

2009 – 2015 Grad Student at the Free University in Berlin
Advisor: Klaus Altmann, Thesis title: *Ext on affine toric varieties*
2010 – 2016 Member of the Berlin Mathematical School (BMS)

Positions

03/2017 – present Employee of the DFG transregional collaborative research centre (SFB-TRR) 195 “Symbolic Tools in Mathematics and their Application”.
01/2017 – 02/2017 Employee of the DFG Priority Program SPP 1489
07/2016 – 12/2016 Fields Postdoctoral Fellow at the Fields Institute in Toronto, Canada
2011 – 06/2016 Employee of the DFG Priority Program SPP 1489
2009 – 2010 Employee of the CRC 647 (Collaborative research center “Space time matter”)

Papers

- [1] K. Altmann et al. *Immaculate line bundles on toric varieties*. 2018. arXiv: 1808.09312.
- [2] C. Jordan, M. Joswig, and L. Kastner. “Parallel enumeration of triangulations.” English. In: *Electron. J. Comb.* 25.3 (2018), research paper p3.6, 27.
- [3] M. Joswig and L. Kastner. “New Counts for the Number of Triangulations of Cyclic Polytopes”. In: *Mathematical Software – ICMS 2018*. Ed. by J. H. Davenport et al. Cham: Springer International Publishing, 2018, pp. 264–271.
- [4] L. Kastner et al. “Toric geometry in polymake.” English. In: *ACM Commun. Comput. Algebra* 51.3 (2018), pp. 92–94.
- [5] L. Kastner, K. Shaw, and A.-L. Winz. “Cellular Sheaf Cohomology in Polymake”. In: *Combinatorial Algebraic Geometry: Selected Papers From the 2016 Apprenticeship Program*. Ed. by G. G. Smith and B. Sturmfels. New York, NY: Springer New York, 2017, pp. 369–385.
- [6] L. Kastner. *Ext and Tor on two-dimensional cyclic quotient singularities*. 2016. arXiv: 1601.05673.

- [7] L. Kastner. “*Ext* on affine toric varieties”. available at http://www.diss.fu-berlin.de/diss/receive/FUDDISS_thesis_000000101520. PhD thesis. Freie Universität Berlin, 2015.
- [8] K. Altmann and L. Kastner. “Negative deformations of toric singularities that are smooth in codimension two.” English. In: *Deformations of surface singularities*. Berlin: Springer; Budapest: János Bolyai Mathematical Society, 2013, pp. 13–55. arXiv: 1109.3344.
- [9] N. O. Ilten and L. Kastner. “Calculating generators of multigraded algebras.” English. In: *J. Symb. Comput.* 51 (2013), pp. 22–33. arXiv: 1203.5382.
- [10] F. Hinkelmann, L. Kastner, and M. Stillman. “A Web Application for Macaulay2”. In: *Journal of Software for Algebra and Geometry* (submitted). Available at <https://github.com/fhinkel/InteractiveShell>.

Software projects

InteractiveShell	Framework for offering mathematical software online to rid the user of the installation process. Written in Javascript and NodeJS. Authored by Franziska Hinkelmann, me and Michael Stillman, see [10]. Uses Docker and Vagrant to offer containers with the desired software to online visitors. A version running Macaulay2 may be found at http://web.macaulay2.com .
Macaulay2	Computer algebra system developed by Michael Stillman and Daniel Grayson. I am currently one of the maintainers of the ‘Polyhedra’ package for computations involving discrete objects.
mptopcom	Framework for computing triangulations of point configurations using parallel environments, see https://polymake.org/mptopcom .
polymake	Software framework for computations involving discrete objects. Together with Benjamin Lorenz I am author of the application <code>ideal</code> for interfacing Singular, as well as of the application <code>fulton</code> for toric geometry.
Singular	Computer algebra system developed by Gert-Marting Greuel and Gerhard Pfister. I am a co-author of the library <code>multigrading.lib</code> for computations involving multigraded rings.

Selected conferences and workshops

December 2016	2016 CMS Winter meeting, Niagra falls, Canada. Talk on “Ext and Tor on two-dimensional cyclic quotient singularities”
July 2016	ICMS 2016, The 5th International Congress on Mathematical Software, Berlin, Germany. Talk on “Toric geometry in <code>polymake</code> ”
January 2016	German-Israeli Workshop in Algebraic and Tropical Geometry, Tel-Aviv, Israel. Talk on “Ext and Tor on two-dimensional cyclic quotient singularities”
July 2015	Workshop and conference: Current Trends on Gröbner Bases, Osaka, Japan

March 2014	Experimental Methods in Computational Algebra, Hannover, Germany. Talk on “Ext from a toric viewpoint”
January 2014	Macaulay2 Workshop, Berkeley, USA.
August 2013	SIAM 2013 in Fort Collins, Colorado, USA. Talk on “Using Polyhedral Divisors in Algebraic Geometry”.
June 2013	Conference “Arithmetic algebraic geometry (AAG2013)” in Berlin, Germany. Responsible for registration and website.
April 2012	Workshop “Toric Geometry” in Oberwolfach, Germany.
May 2011	MEGA 2011 in Stockholm, Sweden. Talk on “Computing generators of multigraded algebras”.
March 2011	Polymake Workshop in Darmstadt, Germany.
September 2010	International Congress on Mathematical Software (ICMS) 2010 in Kobe, Japan.
August 2010	Summer School in Algorithmic Mathematics in Berlin, Germany.
August 2010	Macaulay2 Workshop in Colorado Springs, USA.
January 2009	Workshop ”Toric Geometry” in Oberwolfach, Germany.
November 2007	North German Algebraic Geometry Seminar (NoGAGS) in Hannover, Germany.

Programming experience

Mathematical Software: Macaulay2, polymake, Singular.

Programming: I have written code in C, C++, Java, Javascript, and Perl.

Other: I am familiar with several Linux distributions. Furthermore I have worked with virtualization and container techniques, such as lxc, Docker and Vagrant.

Berlin, April 23, 2019