

Curriculum vitae

Name Lilla Tóthmérész

Research interest

chip-firing, algebraic combinatorics, combinatorial optimization, algorithms

Education and employment

2019- Research fellow, MTA-ELTE Egerváry Research Group, Budapest

2018-2019 Research assistant, MTA-ELTE Egerváry Research Group, Budapest

2017-2018 Visiting assistant professor, Cornell University, USA

2016-2017 Research assistant, MTA-ELTE Egerváry Research Group, Budapest

2013-2016 Mathematics Graduate School, Eötvös Loránd University, Budapest

PhD received in 2017

2011-2012 Université Paris-Est Marne-la-Vallée, M2 Informatique, Bézout Excellence Track Scholarship

2010-2013 MSc in Mathematics, Eötvös Loránd University, Budapest

2007-2010 BSc in Mathematics, Eötvös Loránd University, Budapest

Papers and preprints

1. Tamás Kálmán, Lilla Tóthmérész, *Ehrhart theory of symmetric edge polytopes via ribbon structures*
2. Tamás Kálmán, Lilla Tóthmérész, *Root polytopes and Jaeger-type dissections for directed graphs*, arXiv:2105.00960
3. Gergő Gombos, Lilla Tóthmérész, Tamás Király, and Sándor Laki, *Flow Fairness with Core-Stateless Resource Sharing in Arbitrary Topology*, submitted
4. Lilla Tóthmérész, *Rotor-routing reachability is easy, chip-firing reachability is hard*, European Journal of Combinatorics Volume 101, March 2022, 103466
5. Viktor Kiss, Lionel Levine, Lilla Tóthmérész. *The devil's staircase phenomenon for random graphs and chip-firing on graphons*, arXiv:2004.13104.
6. Tamás Kálmán, Seunghun Lee, Lilla Tóthmérész, *The sandpile group of a trinity and a canonical definition for the planar Bernardi action*, accepted to Combinatorica.
7. Tamás Kálmán, Lilla Tóthmérész, *Hypergraph polynomials and the Bernardi process*, Algebraic Combinatorics, Volume 3 (2020) no. 5 p. 1099-1139.
8. Andreas Gross, Farbod Shokrieh, Lilla Tóthmérész, *Effective divisor classes on metric graphs*, arXiv:1807.00843, submitted.
9. Bálint Hujter, Lilla Tóthmérész, *Chip-firing based methods in the Riemann-Roch theory of directed graphs*, European Journal of Combinatorics 78: pp. 90–104. (2019)

10. Lilla Tóthmérész, *Algorithmic aspects of rotor-routing and the notion of linear equivalence*, Discrete Applied Mathematics 236: pp. 428-437. (2018)
11. Zoltán Király, Lilla Tóthmérész, *On Ryser's conjecture for t -intersecting and degree-bounded hypergraphs*, Electronic Journal of Combinatorics 24:(4) Paper #P4.40. (2017)
12. Bálint Hujter, Viktor Kiss, Lilla Tóthmérész, *On the complexity of the chip-firing reachability problem*, Proceedings of the American Mathematical Society 145:(8) pp. 3343-3356. (2017)
13. Viktor Kiss, Lilla Tóthmérész, *Chip-firing games on Eulerian digraphs and NP-hardness of computing the rank of a divisor on a graph*, Discrete Applied Mathematics 193 (2015) pp. 48-56
14. Gregory Kucherov, Lilla Tóthmérész, Stéphane Vialette, *On the combinatorics of suffix arrays*, Information Processing Letters 113 (2013) pp. 915-920

Teaching

Operations research exercise class, Eötvös Loránd University (2018, 2019, 2020, 2021)
 Graphs and algorithms exercise class, Technical University Budapest, (2019)
 Algorithms I. exercise class, Eötvös Loránd University (2019)
 Introduction to probability, Cornell University (2017 fall, 2018 spring)
 Introduction to complexity theory exercise class, Eötvös Loránd University, (2014, 2015, 2016, 2017)
 Introduction to probability theory exercise class, Eötvös Loránd University, (2014)
 Algorithm design exercise class, Eötvös Loránd University, (2015)
 Complexity theory exercise class, Eötvös Loránd University, (2016)

Language skills

Hungarian (native),
 English (fluent),
 French (intermediate),
 German (intermediate).

Professional service

2013- Taking part in the organisation of the Dürer competition