

Publication List

Mateusz Michałek

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All my publications are available on arXiv.

1. Amanda Cameron, Rodica Dinu, Mateusz Michałek, Tim Seynnaeve, *Flag matroids: algebra and geometry*, to appear in Interactions with Lattice Polytopes, A. Kasprzyk and B. Nill eds., Springer (2020) <https://arxiv.org/abs/1811.00272>
2. Yang Qi, Mateusz Michałek, Lek-Heng Lim, *Complex tensors almost always have best low-rank approximations*, to appear in Applied and Computational Harmonic Analysis (2019) <https://doi.org/10.1016/j.acha.2018.12.003>
3. Azeem Khadam, Mateusz Michałek, Piotr Zwiernik, *Secant varieties of toric varieties arising from simplicial complexes*, Linear Algebra and its Applications **588**, (2020), 428-457.
<https://doi.org/10.1016/j.laa.2019.12.008>
4. Corey Harris, Mateusz Michałek and Emre Can Sertöz, *Computing images of polynomial maps*, Advances in Computational Mathematics **45**, no. 5, (2019), 2845-2865.
<https://doi.org/10.1007/s10444-019-09715-8>.
5. Mateusz Michałek, Tim Seynnaeve, Frank Verstraete, *A tensor version of the quantum Wielandt theorem*, SIAM Journal on Matrix Analysis and Applications **40**, (2019), 1125-1130.
<https://epubs.siam.org/doi/pdf/10.1137/18M1227664>
6. Lukas Katthaen, Mateusz Michałek, Ezra Miller, *When is a polynomial ideal binomial after an ambient automorphism?*, Foundations of Computational Mathematics **19**, (2019), 1363-1385.
<https://doi.org/10.1007/s10208-018-9405-0>
7. Mateusz Michałek and Yaroslav Shitov, *Quantum version of Wielandt's Inequality revisited*, IEEE Transactions on Information Theory **65**, no. 8, (2019), 5239-5242.
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8. Akihiro Higashitani, Katharina Jochemko and Mateusz Michałek, *Arithmetic aspects of symmetric edge polytopes*, Mathematika **65**, no. 3, (2019), 763-784.
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9. Jarosław Buczyński, Tadeusz Januszkiewicz, Joachim Jelisiejew, Mateusz Michałek, *Constructions of k -regular maps using finite local schemes*, Journal of the European Mathematical Society **21**, no. 6, (2019), 1775-1808.
<http://dx.doi.org/10.4171/JEMS/873>
10. Mateusz Michałek, Emanuele Ventura, *Phylogenetic complexity of the Kimura 3-parameter model*, Advances in Mathematics **343**, (2019), 640-680.
<https://doi.org/10.1016/j.aim.2018.11.021>
11. Matthias Beck, Christian Haase, Akihiro Higashitani, Johannes Hofscheier, Katharina Jochemko, Lukas Katthän, and Mateusz Michałek, *Smooth centrally symmetric polytopes in dimension 3 are IDP*, Annals of Combinatorics **23**, no. 2, (2019), 255-262.
<http://dx.doi.org/10.1007/s00026-019-00418-x>
12. Mateusz Michałek, Hyunsuk Moon, *Spaces of Sums of Powers and Real Rank Boundaries*, Contributions to Algebra and Geometry **59**, no. 4, (2018), 645-663.
<http://dx.doi.org/10.1007/s13366-018-0388-4>
13. Mateusz Michałek, Alexander Perepechko, Hendrik Süß, *Flexible affine cones and flexible coverings*, Mathematische Zeitschrift **290**, no. 3-4, (2018), 1457-1478.
<http://dx.doi.org/10.1007/s00209-018-2069-2>
14. Joseph Landsberg, Mateusz Michałek, *A $2n^2 - \log(n) - 1$ lower bound for the border rank of matrix multiplication*, International Mathematics Research Notices **2018**, no. 15, (2018), 4722-4733.
<http://dx.doi.org/10.1093/imrn/rnx025>
15. Thomas Kahle, Mateusz Michałek, *Obstructions to combinatorial formulas for plethysm*, Electronic Journal of Combinatorics **25** no. 1, (2018).
<http://www.combinatorics.org/ojs/index.php/eljc/article/view/v25i1p41>
16. Joseph Gubeladze, Mateusz Michałek, *The poset of rational cones*, Pacific Journal of Mathematics **292**, (2018), 103-115.
<http://dx.doi.org/10.2140/pjm.2018.292.103>
17. Akihiro Higashitani, Mario Kummer, Mateusz Michałek, *Interlacing Ehrhart Polynomials of Reflexive Polytopes*, Selecta Mathematica **23** no. 4, (2017), 2977-2998.
<http://dx.doi.org/10.1007/s00029-017-0350-6>
18. Joseph Landsberg, Mateusz Michałek, *Abelian tensors*, Journal de Mathématiques Pures et Appliquées **108** no. 3, (2017), 333-371.
<http://dx.doi.org/10.1016/j.matpur.2016.11.004>
19. Marta Casanellas, Jesus Fernandez-Sanchez, Mateusz Michałek, *Local equations for equivariant evolutionary models*, Advances in Mathematics **315**, (2017), 285-323.
<https://doi.org/10.1016/j.aim.2017.05.003>

20. Mateusz Michałek, Christopher Miller, *Examples of k -regular maps and interpolation spaces*, Linear Algebra and its Applications **530**, (2017), 94–108.
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21. Mateusz Michałek, Hyunsuk Moon, Bernd Sturmfels, Emanuele Ventura, *Real Rank Geometry of Ternary Forms*, Annali di Matematica Pura ed Applicata **169** no. 3, (2017), 1025–1054.
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22. Joseph Landsberg, Mateusz Michałek, *On the geometry of border rank algorithms for matrix multiplication and other tensors with symmetry*, SIAM Journal on Applied Algebra and Geometry **1** no. 1 (2017), 2–19.
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23. Mateusz Michałek, Emanuele Ventura, *Finite phylogenetic complexity and combinatorics of tables*, Algebra & Number Theory **11** no. 1 (2017), 235–252.
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24. Mateusz Michałek, *Finite phylogenetic complexity of \mathbb{Z}_p and invariants for \mathbb{Z}_3* , European Journal of Combinatorics **59** (2017), 169–186.
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25. Michał Lasoń, Mateusz Michałek, *Non-normal very ample polytopes - constructions and examples*, Experimental Mathematics **26** no. 2 (2017), 130–127.
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26. Winfried Bruns, Joseph Gubeladze, Mateusz Michałek, *Quantum jumps of normal polytopes*, Discrete and Computational Geometry **56** no. 1 (2016), 181–215.
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27. Mateusz Michałek, Rosa-Maria Miró-Roig, *Smooth monomial Togliatti systems of cubics*, Journal of Combinatorial Theory, Series A **143** (2016), 66–87.
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<http://dx.doi.org/10.1016/j.laa.2015.04.027>
33. Matthias Beck, Jessica Delgado, Joseph Gubeladze, Mateusz Michałek, *Very ample and Koszul segmental fibrations*, Journal of Algebraic Combinatorics **42** (2015) no. 1, 165–182.
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34. Mateusz Michałek, *Toric varieties in phylogenetics*, Dissertationes Mathematicae **511** (2015), 3–86.
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35. Marta Casanellas, Jesus Fernandez-Sanchez, Mateusz Michałek, *Low degree equations for phylogenetic group-based models*, Collectanea Mathematica **66** (2015), no. 2, 203–225.
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40. Weronika Buczyńska, Jarosław Buczyński, Kaie Kubjas, Mateusz Michałek, *On the graph labellings arising from phylogenetics*, Central European Journal of Mathematics **11.9** (2013), 1577-1592.
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41. Mateusz Michałek, *Birational maps between Calabi–Yau manifolds associated to webs of quadrics* Journal of Algebra **370** (2012), 186-197.
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44. Michał Lasoń, Mateusz Michałek, *On the full, strongly exceptional collections on toric varieties with Picard number three* Collectanea Mathematica 62, no. 3 (2011), 275-296.
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Under review:

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2. Joseph Landsberg, Mateusz Michałek, *Towards finding hay in a haystack: explicit tensors of border rank greater than $2.02m$ in $\mathbb{C}^m \otimes \mathbb{C}^m \otimes \mathbb{C}^m$* , arXiv preprint <https://arxiv.org/abs/1912.11927> (2019).
3. Alessio D'Ali, Emanuele Delucchi, Mateusz Michałek, *Many faces of symmetric edge polytopes*, arXiv preprint <https://arxiv.org/abs/1910.05193> (2019).
4. Khazhgali Kozhasov, Mateusz Michałek, Bernd Sturmfels, *Positivity Certificates via Integral Representations*, arXiv preprint <https://arxiv.org/abs/1908.04191> (2019).
5. Lek-Heng Lim, Mateusz Michałek, Yang Qi, *Best k -layer neural network approximations*, arXiv preprint <https://arxiv.org/abs/1907.01507> (2019).

6. Takayuki Hibi, Michał Lason, Kazunori Matsuda, Mateusz Michałek, Martin Vodička, *Gorenstein graphic matroids*, arXiv preprint <https://arxiv.org/abs/1905.05418> (2019).
7. Adam Czapliński, Mateusz Michałek, Tim Seynnaeve, *Uniform matrix product states from an algebraic geometer's point of view*, arXiv preprint <https://arxiv.org/abs/1904.07563> (2019).
8. Laura Colmenarejo, Francesco Galuppi, Mateusz Michałek, *Toric geometry of path signature varieties*, arXiv preprint <https://arxiv.org/abs/1903.03779> (2019).
9. Pietro De Poi, Emilia Mezzetti, Mateusz Michałek, Rosa Maria Miró-Roig, Eran Nevo, *Circulant matrices and Galois-Togliatti systems*, arXiv preprint <https://arxiv.org/abs/1808.08387> (2018).

Other:

1. Oberwolfach report 'Symmetric Edge Polytopes'
2. Oberwolfach report 'Can local cohomology prevent injections?'
3. Mateusz Michałek, Bernd Sturmfels, *Tensoren und ihre Zerlegungen*, Forschungsbericht 2018 MPI MiS
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4. Mateusz Michałek, *Review of the book "Geometry and Complexity Theory" by JM Landsberg*, Bulletin of the American Mathematical Society - invited review.
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5. Jarosław Buczyński, Mateusz Michałek, Elisa Postingshel, *Introduction to "Schubert varieties, equivariant cohomology and characteristic classes, IMPANGA15 volume"*, to appear in EMS Ser. Congr. Rep., Eur. Math. Soc., 2018.
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6. Mateusz Michałek, *Selected Topics on Toric Varieties*, Proceedings of the MSJ SI 2015.
<https://doi.org/10.2969/aspm/07710207>
7. Oberwolfach report 'Normal and Very Ample Polytopes – old and new open problems'
<http://dx.doi.org/10.4171/OWR/2017/44>
8. Oberwolfach report No. 19/2016 'Toric structures in nontoric varieties'
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9. Mateusz Michałek, *Notes on Kebekus' lectures on differential forms on singular spaces*, Impanga Lecture Notes: Contributions to algebraic geometry, 375-388, EMS Ser. Congr. Rep., Eur. Math. Soc., 2012
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10. Translation of the book by M. Atiyah and I. Macdonald, *Introduction to commutative algebra* from English to Polish, jointly with Wojciech Lubawski.

Books:

1. Mateusz Michałek, Bernd Sturmfels, *Invitation to Nonlinear Algebra*, in progress <https://personal-homepages.mis.mpg.de/michalek/book.html>