Yaroslav Alekseev

tolstreg@gmail.com

Biographical Data

- 1. Citizenship: Russia
- 2. Date and place of birth: 01.06.1999, Saint-Petersburg, Russia

Research Interests

- 1. Proof complexity
- 2. Computational complexity
- 3. Communication complexity

Education

- 1. **Master**, *Saint-Petersburg State University*, St. Petersburg, Russia, 2020 2022. Academic programme title: Advanced Mathematics.
- 2. Bachelor, Saint-Petersburg State University, St. Petersburg, Russia, 2016 2020. Academic programme title: Mathematics.

Publications

1. Yaroslav Alekseev, Dima Grigoriev, Edward A. Hirsch, and Iddo Tzameret. Semialgebraic proofs, IPS lower bounds and the τ -conjecture: Can a natural number be negative? In *Proceedings of the 52nd Annual ACM Symposium on Theory of Computing (STOC 2020)*, pages 54–67, 2020. Full version (57 pages) is submitted to a journal.

https://dl.acm.org/doi/10.1145/3357713.3384245

 Yaroslav Alekseev. A Lower Bound for Polynomial Calculus with Extension Rule. In 36th Computational Complexity Conference (CCC 2021), volume 200 of Leibniz International Proceedings in Informatics (LIPIcs), pages 21:1–21:18, Dagstuhl, Germany, 2021.

https://doi.org/10.4230/LIPIcs.CCC.2021.21

Seminar talks

- 1. 07.08.2020 long talk (90 minutes) at PDMI complexity seminar https://logic.pdmi.ras.ru/seminars/complexity-seminar
- 2. 16.11.2020 long talk (90 minutes) at Czech Logic Seminar https://calendar.math.cas.cz/content/lower-bound-polynomial-calculus-extension-rule

Conference talks

 Yaroslav Alekseev. Semialgebraic vs algebraic proofs: lower bounds. Problems in Theoretical Computer Science 2019. 29.11-01.12.2019, Moscow. https://cs.hse.ru/en/big-data/tcs-lab/ptcs2019/

Awards and fellowships

- Best Student Paper award on Computational Complexity Conference 2021. https://www.computationalcomplexity.org/Archive/2021/program.php
- Young Russian mathematicians competition award for students. https://siriusmathcenter.ru/all-russian-conference
- From 2016 to 2022 was supported by «Native towns», a social investment program 23 of PJSC «Gazprom Neft».