

Algebra/Topology Seminar

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SIMULATING TIME WITH SQUARE-ROOT SPACE

Thursday, May 1, 2025
3:00 p.m. in Social Sciences 256

ABSTRACT. I will talk about the recent paper “Simulating Time With Square-Root Space” (eccc.weizmann.ac.il/report/2025/017/) by Ryan Williams, showing that any algorithm running in time $t(n) \geq n$ can be simulated using only roughly \sqrt{t} space. (Spoiler alert: an important part of the proof is a recent algorithm by Cook and Mertz (doi.org/10.1145/3618260.3649664), so I’ll spend a lot of time discussing that paper as well.) I’ll try to keep the talk accessible for a general mathy audience, and not assume any expertise in complexity theory.