TOPOLOGY SEMINAR

Matrix Reduction Algorithm and Morozov's Worst Case Example

By

Uzay Çetin
(Bilkent University)

Abstract: Matrix reduction algorithm on a simplicial complex is a fairly new wave in persistent homology due to its implementations on programs like Ripser and many algorithms that have been built upon that. Persistent algorithm dates back to 2002 with a pairing algorithm and its runtime has been shown to be $O(N^3)$. Morozov in his 2005 article gives an explicit example of the existence of this case. In my talk, I will talk about the matrix reduction and how it is done, and explain why the example runs at $O(N^3)$ by combining the logic behind pairing and matrix algorithms. After that, I will also mention an alternative example and in which ways it improves the original example.

Date: Monday, March 4, 2024
Time: 13:30
Place: SA141 - Mathematics Seminar Room & ZOOM

To request the event link, please send a message to cihan.okay@bilkent.edu.tr