

**The Weizmann Institute of Science
Faculty of Mathematics and Computer Science**

Foundations of Computer Science Seminar

Room 155, Ziskind Building
on Monday, May 06, 2024
at 11:15

Yotam Dikstein
IAS

will speak on

New Derandomized Agreement Tests

Abstract:

Agreement testing (aka direct product testing), checks if consistent local information reveals global structure. Beyond its theoretical connections to probabilistic checkable proofs (PCPs), constructing agreement testers is a fundamental combinatorial question that has exciting applications in coding theory and hardness amplification.

In recent work we construct new derandomized '1%-regime' agreement tests. Derandomization of these tests is an important stepping stone towards derandomizing many PCPs, such as the parallel repetition PCP.

We will define agreement tests and give some background on their importance. Then we will see a surprising connection between agreement testing to a problem in algebraic topology. Finally, we will discuss how strong group theoretic tools solve this problem and lead to our construction.

Based on joint work with Irit Dinur and Alex Lubotzky.