The Weizmann Institute of Science
Faculty of Mathematics and Computer Science

Foundations of Computer Science Seminar

Room 155, Ziskind Building
on Monday, Nov 14, 2016
at 14:30

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Algebraic Attacks against Random Local Functions and Their Countermeasures

Abstract:

Suppose that you have n truly random bits X=(X1, ..., Xn) and you wish to use them to generate m>>n pseudorandom bits Y=(Y1, ..., Ym) using a local mapping, i.e., each Yi should depend on at most d=O(1) bits of x. In the polynomial regime of m=n^s, s>1, the only known solution, originates from (Goldreich, ECCC 2000), is based on Random Local Functions: Compute Yi by applying some fixed (public) d-ary predicate P to a random (public) tuple of distinct inputs. In this talk, we will try to understand, for any value of s, how the pseudorandomness of the resulting sequence depends on the choice of the underlying predicate.
Based on joint work with Shachar Lovett.