מכון ויצמן למדע

THE WEIZMANN INSTITUTE OF SCIENCE

FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Seminar in Geometry and Topology

Room 290C ,Ziskind Building
on Monday, Jan 09, 2017
at 16:15

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Wilkie's conjecture for restricted elementary functions

Abstract:

Let X be a set definable in some o-minimal structure. The Pila-Wilkie theorem (in its basic form) states that the number of rational points in the transcendental part of X grows sub-polynomially with the height of the points. The Wilkie conjecture stipulates that for sets definable in $R_\exp$, one can sharpen this asymptotic to polylogarithmic.
I will describe a complex-analytic approach to the proof of the Pila-Wilkie theorem for subanalytic sets. I will then discuss how this approach leads to a proof of the "restricted Wilkie conjecture", where we replace $R_\exp$ by the structure generated by the restrictions of $\exp$ and $\sin$ to the unit interval (both parts are joint work with Dmitry Novikov). If time permits I will discuss possible generalizations and applications.