**Speaker:** Andrei Yafaev

**Title:** Some applications of $o$-minimality in Diophantine Geometry

**Abstract:** In this talk I will outline recent strategies to approach some open problems in Diophantine Geometry concerning ‘unlikely intersections’ in certain types of algebraic varieties. The strategy, initiated by Pila and Zannier, makes essential use of the theory of $o$-minimality which combines ideas from real algebraic and analytic geometry and model theory.

After an overview of $o$-minimality, I will illustrate the strategy on one concrete example - the Manin-Mumford conjecture for the two dimensional torus.