Speaker: Andrei Jaikin

Title: The Hanna Neumann conjecture for non-abelian surface groups.

Abstract: The Hanna Neumann conjecture is a statement about the rank of the intersection of two finitely generated subgroups of a free group. The conjecture was posed by Hanna Neumann in 1957. In 2011, a strengthened version of the conjecture was proved independently by Joel Friedman and by Igor Mineyev.

In my talk I will introduce the geometric Hanna Neumann condition for a family of subgroups of a group, which is a variation of the Strengthened Hanna Neumann condition, where instead of rank we consider the Euler characteristic. I will discuss this property for finitely generated subgroups of limit groups and for quasiconvex subgroups of torsion-free hyperbolc virtually special cocompact groups.

Finally, I will prove that any pair of finitely generated subgroups of a surface group satisfies the geometric Hanna Neumann condition. L^2-Betti numbers will play an essential role in the proof. As a consequence, we obtain that the original Strengthened Hanna Neumann conjecture holds not only in free groups but also in non-abelian surface groups. The talk is based on a joint work with Yago Antolin.