Abstract:
Let $G$ be a finitely generated subgroup of $\text{GL}(n, \mathbb{Q})$. Under certain algebraic conditions, strong approximation describes the closure of $G$ with respect to its congruence topology. Super-approximation essentially tells us how dense $G$ is in its closure! Here is my plan for this talk:
1. I will start with the precise formulation of this property.
2. Some of the main results on this subject will be mentioned.
3. Some of the (unexpected) applications of super-approximation will be mentioned, e.g. Banach-Ruziewicz problem, orbit equivalence rigidity, variation of Galois representations.
4. Some of the auxiliary results that were needed in the proof of super-approximation will be mentioned: sum-product phenomena, existence of small solutions.