1172-14-261 **Pietro Corvaja**, **Andrei Rapinchuk** and **Jinbo Ren*** (renjinbomath@gmail.com), 1 Einstein Dr, Institute for Advanced Study, Princeton, NJ 08540, and **Umberto Zannier**. *Some applications of Diophantine Approximation in Group theory.*

An abstract group Γ is called Boundedly Generated if there exist $g_1, g_2, \ldots, g_r \in \Gamma$ such that $\Gamma = \langle g_1 \rangle \cdots \langle g_r \rangle$ where $\langle g \rangle$ is the cyclic group generated by g. While being a purely combinatorial property of groups, bounded generation has a number of interesting consequences and applications in different areas. For example, bounded generation has close relation with Serre's Congruence Subgroup Problem and the Margulis-Zimmer conjecture.

In my recent joint work with Corvaja, Rapinchuk and Zannier, we applied an "algebraic geometric" version of Subspace Theorem in Diophantine Approximation, i.e. Laurent's theorem, to prove a series of results about when a group is boundedly generated. In particular, we have shown that a finitely generated anisotropic linear group over a field of characteristic zero has bounded generation if and only if it is virtually abelian, i.e. contains an abelian subgroup of finite index.

In this talk, I will explain the idea of the proof and give certain open problems. (Received August 30, 2021)