GEOMETRY SEMINAR

Super Approximation for Zariski dense subgroups of $SL_2(\mathbb{Z}) \times SL_2(\mathbb{Z})$

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Date:	November 14, 2023 (Tuesday)
Time:	4:00 – 5:00pm
Venue:	Rm 210, Run Run Shaw Bldg., HKU

Abstract

It is a discovery of Margulis in 1970s that congruence quotients of $SL_2(\mathbb{Z})$ can be used to construct expanders, which are certain sparse but highly connected graphs. The Super Approximation Conjecture of Salehi-Golsefidy and Varju gives a precise prediction on which more general subgroups of $SL_d(\mathbb{Z})$ have this property. In this talk, I will survey the history of this conjecture, and describe a recent progress by Tang Jincheng and myself that all Zariski dense subgroups of $SL_2(\mathbb{Z}) \times SL_2(\mathbb{Z})$ have this property. This progress relies on the development of a key tool in arithmetic combinatorics conjectured by Salehi-Golsefidy.

All are welcome