THE UNIVERSITY   **OF HONG KONG**

Institute of Mathematical Research
Department of Mathematics

Number Theory Seminar

The lattice point counting problem for *(2q+1)*-dimensional Cygan-Koranyi balls

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Abstract

Euclidean lattice point counting problems, the classical example of which is the Gauss circle problem, are an important topic in classical analysis and have been the driving force behind much of the developments in the area of analytic number theory in the 20th century. In this talk, I will discuss the lattice point counting problem for $(2q + 1)$-dimensional Cygan-Koranyi balls, namely, the problem of establishing error estimates for the number of integer lattice points lying inside Heisenberg dilates of the unit ball with respect to the Cygan-Koranyi norm. I will explain how this problem arises naturally in the context of the Heisenberg groups, and how it relates to the Euclidean case (and in particular to the Gauss circle problem). I will survey some of the major results obtained to date for this lattice point counting problem, including some recently obtained results on the fluctuating nature of the error term in the 3-dimensional case.

Date:	November 30, 2021 (Tuesday)
Time:	4:30 – 5:30pm (Hong Kong Time)
Venue:	ZOOM: https://hku.zoom.us/j/
	Meeting ID: 999 0463 7074
	Password: 483015

All are welcome