

Ph.D. Thesis Defense

Speaker: Sameer Kulkarni

Title: Equidistribution of Matrix Valued Gauss Sums and Singular Gauss Sums

Date & Time: Friday, 19 April, 2024 at 4:00 p.m. (over Zoom)

Abstract: First, we present the equidistribution properties of matrix valued Gauss sums attached to cuspidal representations of finite general linear groups. In particular, we show that the Gauss sums attached to the cuspidal representations of  $G$  are equidistributed on  $S^1$  with respect to the Haar measure for  $G = GL_d(\mathbb{F}_q)$ , and  $G = PGL_d(\mathbb{F}_q)$  for  $d \geq 3$ . On the other hand, we show the Gauss sums are identical to  $\pm 1$  for  $PGL_2(\mathbb{F}_q)$ . We show that this dichotomy is related to the self dual nature of these representations, and generalize this result to show that the Gauss sums of cuspidal self dual representations of general linear groups are equidistributed around  $\pm 1$ .

In the second part, we study the singular Gauss sums, which were introduced by Gaunguly and Rajan for  $GL_2(\mathbb{F}_p)$ . We give partial generalizations of their results to  $GL_n(\mathbb{F}_p)$ .

The definitions will be given and the talk will be self contained.

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Topic: Ph.D. Thesis Defense  
Time: Apr 19, 2024 04:00 PM India

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