

GRADUATE SEMINAR

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On the intersection density of primitive groups of degree pq

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2:30 PM

<https://uregina-ca.zoom.us/j/94125367372>

Abstract: Given a finite transitive permutation group $G \leq \text{Sym}(\Omega)$ and a set of permutations $\mathcal{F} \subset G$, we say that \mathcal{F} is *intersecting* if any two elements of \mathcal{F} agree on an element of Ω . The *intersection density* of an intersecting set \mathcal{F} of G is $\rho(\mathcal{F}) := |\mathcal{F}| \left(\frac{|G|}{|\Omega|}\right)^{-1}$ and the *intersection density* of G is

$$\rho(G) = \max \{ \rho(\mathcal{F}) \mid \mathcal{F} \subset G \text{ is intersecting} \}.$$

It was conjectured by Meagher, Razafimahatratra and Spiga in [On triangles in derangement graphs, *J. Combin. Theory Ser. A*, 180:105390, 2021] that if $G \leq \text{Sym}(\Omega)$ is transitive of degree pq , where p and q are odd primes, then $\rho(G) = 1$. I will talk about some recent progress on this conjecture for primitive groups.

This talk is based on <https://arxiv.org/abs/2109.05392>.

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