
Departmental Seminar

Seminar Title	: Vertex-minimal graphs and fixing sets for modular p -groups
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Venue	: Seminar Room, Department of Mathematics
Date and Time	: 18 Jun 2025 (11.30 AM)
Abstract	: Let G be a finite group. Define $\alpha(G)$ as the minimum number of vertices among all graphs Γ such that $\text{Aut}\Gamma \cong G$. For any prime p , all p -groups of order p^n having cyclic subgroups of order p^{n-1} have been completely classified. Here, we consider one family of groups called modular p -groups, denoted by $\text{Mod}_n(p)$, for an odd prime p and $n \geq 3$. We compute the order of vertex-minimal graphs with $\text{Mod}_n(p)$ -symmetry. The fixing number of a graph Γ is defined as the smallest number of vertices in $V(\Gamma)$ that, when fixed, makes $\text{Aut}\Gamma$ trivial. For a finite group G , the fixing set is defined as the set of all fixing numbers of graphs having automorphism groups isomorphic to G . We show that any graph Γ whose automorphism group is a modular p -group has the fixing number 1. As a result, the modular p -group's fixing set becomes $\{1\}$. Keywords: Automorphism group, p -group, vertex-minimal graph, fixing number, fixing set.