On the fixing sets of symmetric groups

Christina Graves (University of Texas at Tyler), L.-K. Lauderdale* (Towson University)

The *fixing number* of a graph Γ is the minimum number of labeled vertices that, when fixed, remove all nontrivial automorphisms from the automorphism group of Γ. This concept was extended to finite groups by Gibbons and Laison. The *fixing set* of a finite group G is the set of all fixing numbers of graphs whose automorphism groups are isomorphic to G. Surprisingly few fixing sets of groups have been established; only the fixing sets of abelian groups and dihedral groups are completely understood. However, the fixing sets of symmetric groups have been studied previously. In this talk, we will discuss new elements of the fixing sets of symmetric groups by considering line graphs of complete graphs. We will conclude by considering the fixing sets of generalized quaternion groups.

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