

Speaker: John McHugh

Title: Trivial source modules and coherent character tuples

Abstract: Let G be a finite group and let $(\mathbb{K}, \mathcal{O}, F)$ be a p -modular system large enough for G . If M is a trivial source $\mathcal{O}G$ -module, applying the Brauer construction at a p -subgroup P of G to M results in a trivial source $FN_G(P)/P$ -module $M(P)$. Let M_P denote a trivial source $\mathcal{O}N_G(P)/P$ -module that ‘lifts’ $M(P)$, and let χ_P denote the character of M_P . In this way, one constructs from M a tuple of characters (χ_P) indexed by the p -subgroups of G . Rickard showed in the 90s that the tuple (χ_P) satisfies a certain ‘coherency’ condition. I will discuss this condition as well as a recent result of Boltje and Carman which shows that the trivial source ring $T_{\mathcal{O}}(G)$ is isomorphic to the ring of G -stable ‘coherent character tuples.’ I will then share analogous results which characterize the trivial source group $T_{\mathcal{O}}(B)$, where B is a block of $\mathcal{O}G$. In this case, rather than take the set of all p -subgroups as our indexing set for the coherent character tuples, one may take as an index the set of B -Brauer pairs, or even the subgroups of a fixed defect group of B (i.e., the objects in the fusion system associated to B). As an application of this work we can make explicit the connection between ‘ p -permutation equivalences’ and ‘isotypies’.