Abstract

Local finite group theory has been an important topic, particularly via the Classification of Finite Simple Groups. Fusion systems are categories defined on p-groups, which have helped simplify and extend much of the theory in the last 20 years and are starting to link group theory, representation theory, and algebraic topology. By Alperin-Goldschmidt's fusion theorem, a saturated fusion system can be completely determined by its essential subgroups. In this talk, I will demonstrate the strong influence of two-generator essential subgroups on the structure of fusion systems and the classification of related fusion systems.