



The rising STAR of Texas

Discrete Mathematics Seminar

Time: Friday, 10 February 2017, 2:15 – 3:15 PM
Location: 237 Derrick Hall
Title: On p -parts of character degrees of finite groups
Speaker: Dr. Yong Yang, Department of Mathematics, Texas State University

Abstract:

Let G be a finite group and P be a Sylow p -subgroup of G , it is reasonable to expect that the degrees of irreducible characters of G somehow restrict the structure of P . The Ito-Michler Theorem proves that each ordinary irreducible character degree is coprime to p if and only if G has a normal abelian Sylow p -subgroup. Of course, this implies that $|G : F(G)|_p = 1$ where $F(G)$ is the Fitting subgroup of G .

Let G be a finite group and $Irr(G)$ the set of irreducible complex characters of G . Let $e_p(G)$ be the largest integer such that $p^{e_p(G)}$ divides $\chi(1)$ for some $\chi \in Irr(G)$. In this talk, we show that $|G : F(G)|_p \leq p^{Ke_p(G)}$ for a universal constant K . This settles a conjecture of A. Moretó.