Speaker: Timothy Kohl, Boston University

Title: Groups of order $4p$, twisted wreath products and Hopf-Galois theory

Time: Wednesday, October 19, 2005, 4:00pm

Place: Auburn University Montgomery, Goodwyn Hall, Room 202

Abstract

The work of C. Greither and B. Pareigis details the enumeration of the Hopf-Galois structures (if any) on a given separable field extension. We consider the cases where L/K is already classically Galois with $\Gamma = Gal(L/K)$, where $|\Gamma| = 4p$ for $p > 3$ a prime. The goal is to determine those regular (i.e. transitive and fixed point free) subgroups N of $Perm(\Gamma)$ that are normalized by the left regular representation of Γ. A key fact that aids in this search is the observation that any such regular subgroup, necessarily of order $4p$, has a unique subgroup of order p. This allows us to show that all such N are contained in a "twisted" wreath product, a subgroup of high index in $Perm(\Gamma)$ which has a very computationally convenient description that allows us to perform the aforementioned enumeration.

Refreshments served at 3:45pm.

The Department of Mathematics thanks the
AUM Lectures Program for its generous support of MAMS.