Meeting: 1004, Bowling Green, Kentucky, SS 10A, Special Session on Hopf Algebras and Related Topics

1004-13-69 **Robert G. Underwood*** (runderwo@mail.aum.edu), Department of Mathematics, Auburn University, Montgomery, P.O. Box 244023, Montgomery, AL 36124-4023. *Parameters for Hopf Orders.* Preliminary report.

Let K be a finite extension of the p-adic rationals $\mathbb{Q}_p$ with ring of integers R, let C_{p^n} denote the cyclic group of order p^n, $n \geq 1$, and let H be a Hopf algebra order in the group algebra KC_{p^n}. L. Childs has conjectured that Hopf orders in KC_{p^n} can be classified using $n(n+1)/2$ parameters consisting of n valuation parameters and $n(n-1)/2$ unit parameters. This conjecture is known to be true for the case $n = 1$ (J. Tate and F. Oort) and for the case $n = 2$ (C. Greither, N. Byott, L. Childs, and R. Underwood.) For $n = 3$ many interesting Hopf orders in KC_{p^3} can be constructed using six parameters–three valuation parameters and three unit parameters–though it is not known whether six parameters completely determine all of the Hopf orders.

In this paper we discuss Childs' conjecture and focus on the open case when $n = 3$. (Received January 15, 2005)