1017-16-50   **Nigel P. Byott*** (`N.P.Byott@ex.ac.uk`), Mathematics Research Institute, University of Exeter, EX4 4QE Exeter, England. *Counting Hopf-Galois structures on field extensions.*

A result of Greither and Pareigis describes in group-theoretic terms all Hopf-Galois structures on a finite separable field extension. This raises the question of counting all possible Hopf-Galois structures on a given field extension. In this talk, I will give a survey of known results in this area, and then discuss in more detail the case of extensions which are either cyclic or radical of degree a power of 2. These results complement work of T. Kohl on radical extensions of odd prime-power degree. In contrast to the odd case, a cyclic or radical extension of degree 2^n for $n \geq 3$ admits Hopf-Galois structures in which the Hopf algebra acting is noncommutative. (Received February 07, 2006)

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