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Lindsay N. Childs* (childs@math.albany.edu), Department of Mathematics, University at Albany, Albany, NY 12222. *Counting Hopf Galois structures on Galois extensions of fields.*

If L/K is a Galois extension of fields with Galois group Γ , then the Hopf Galois structures on L/K by a K -Hopf algebra H with associated group G correspond bijectively to the set $E(\Gamma, G)$ of equivalence classes of regular embeddings of Γ into $Hol(G)$, the holomorph of G in $Perm(G)$. We discuss some recent results related to determining those equivalence classes. In particular, we find lower bounds for the cardinality of $E(\Gamma, G)$ when Γ is isomorphic to the group of principal units of $\mathbb{F}_p[x]/(x^{m+1})$ and G is an elementary abelian p group of order p^m (p an odd prime), relating to work of Featherstonhaugh, and when $G = \Gamma$ is a semidirect product of finite cyclic groups. This last work is joint with Jesse Corradino. (Received February 02, 2006)