
ALAN KOCH, Agnes Scott College

Abelian maps, Hopf-Galois structures, and solutions to the Yang-Baxter equation

Let L/K be a nonabelian Galois extension, and let $G = \text{Gal}(L/K)$. Let $\psi : G \rightarrow G$ be an endomorphism whose image is an abelian subgroup of G . We construct a K -Hopf algebra H_ψ and show that L/K is an H_ψ -Galois extension. A Hopf-Galois structure on L/K allows us to construct two skew left braces, each of which in turn gives a non-degenerate, set-theoretic solution to the Yang-Baxter equation. We explicitly describe the two skew left braces as well as the corresponding solutions.