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Susan Montgomery*, smontgom@usc.edu, and **Andrea Jedwab**. *Modular representations and indicators for bismash product Hopf algebras.*

For a finite group G , Brauer characters give a way of studying irreducible representations over a field k of characteristic p , by lifting information to characteristic 0. In this work, we extend the notion of Brauer characters and some of their basic properties to the case of a bismash product Hopf algebra $H = k^G \# kF$ constructed from a factorization $L = FG$ of a finite group. We give an analog of the Cartan matrix and show that its determinant is a power of p , and then prove the analog of a theorem of J. Thompson (1986) on Frobenius-Schur indicators:

Theorem: Let k be an algebraically closed field of odd characteristic. Let $H_{\mathbb{C}} = \mathbb{C}^G \# \mathbb{C}F$ be a bismash product over \mathbb{C} and $H_k = k^G \# kF$ the corresponding bismash product over k . Then if all irreducible $H_{\mathbb{C}}$ -modules have Schur indicator $+1$ (respectively ± 1 , or ≥ 0), the same is true for all irreducible H_k -modules.

We apply this theorem to obtain the char p analog of recent results on indicators in char 0 by the authors and by J. Timmer. (Received September 03, 2014)