1077-16-576 **Andrea Jedwab** and **M. Susan Montgomery***, Dept of Mathematics, KAP 104, USC, 3620 S. Vermont Ave, Los Angeles, CA 90089-2532. *Brauer characters and Frobenius-Schur indicators for bismash products.* Preliminary report.

For a finite group G, Brauer characters give a way of studying irreducible representations in characteristic p, by "lifting" information to characteristic 0. We extend the notion of Brauer characters and some basic properties to the case of a bismash product $H = k^G \# kF$ of groups F, G. For example, we show that the determinant of the Cartan matrix is a power of p. We 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), the same is true for all irreducible H_k-modules.

Using the theorem and our previous work with Jedwab over $\mathbb{C}$ we show that if k is as above and $H_k = k^{C_n} \# kS_{n-1}$ is the bismash product constructed from the standard factorization of the symmetric group $S_n = S_{n-1}C_n$, then every irreducible representation of H_k has indicator $+1$, that is H_k is totally orthogonal. (Received September 07, 2011)