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Anne V. Shepler* (ashepler@unt.edu), Department of Mathematics, P.O. Box 311430, University of North Texas, Denton, TX 76203-1430, and **Sarah Witherspoon**, Department of Mathematics, Texas A&M University, College Station, TX 77843. *Invariant Theory, Hochschild Cohomology, and Graded Hecke Algebras.*

We use ideas from classical invariant theory to determine graded Hecke algebras. These algebras arise as deformations of skew/smash group algebras $S(V)\#G$ (where the group G acts on V) and include algebras defined by Lusztig, Drinfeld, Etingof-Ginzburg, Cherednik, and others. We use techniques from invariant theory (and hyperplane arrangements) to find Hochschild cohomology and discuss how and when 2-cocycles explicitly determine graded Hecke algebras. We are particularly interested in real and complex reflection groups. (Received September 25, 2006)