1039-16-74   **Yorck Sommerhäuser*** (`sommerh@jaguar1.usouthal.edu`), Department of Mathematics and Statistics, ILB 421, Mobile, AL 36688. *The Hopf symbol.*

It is a classical result that Gaussian sums transform with the Jacobi symbol under the action of the Galois group. We explain in the talk how this fact can be generalized to semisimple factorizable Hopf algebras: If one turns the group ring of a cyclic group into a factorizable Hopf algebra by endowing it with a nontrivial R-matrix, the Gaussian sum occurs as the trace of the inverse Drinfel'd element in the regular representation. It now turns out that also for more general factorizable Hopf algebras the trace of the inverse Drinfel'd element transforms under the action of the Galois group in a similar way, namely with a generalization of the Jacobi symbol that we call the Hopf symbol. The talk is based on joint work with Yongchang Zhu. (Received March 05, 2008)