Meeting: 1001, Evanston, Illinois, SS 24A, Special Session on Hopf Algebras at the Crossroads of Algebra, Category Theory, and Topology

1001-16-420 **Fernando J. O. Souza*** (`fernando-souza@uiowa.edu`), Department of Mathematics, 14 MLH, University of Iowa, Iowa City, IA 52242-1419. *On integrals and trace functions for Hopf-algebra objects in symmetric, traced categories.*

Integrals for universal Hopf-algebra objects in symmetric, traced categories, and their use to build trace functions were studied by Greg Kuperberg (1991, 1996), generalizing results by David Radford et al. We revised this work (1999-2002), reformulating and correcting some of its definitions and results in order to give it a solid algebraic and category-theoretical framework. We also proved that some assumptions in Kuperberg's work on the involutory case of invertible dimension (1991) are always true. It is worthwhile mentioning that there are approaches to integrals for universal Hopf-algebra objects in braided categories with additional hypotheses. However, more specific, yet very useful results can be obtained under the assumption that the underlying category is symmetric, even in the involutory case.

In this talk, we will give an overview of the above approaches and, as time allows, discuss their role in applications to 3-manifold theory. (Received August 31, 2004)