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Generalized Trace and Dimension Functions in Ribbon Categories.

Ribbon categories are ubiquitous in representation theory. They appear as the finite dimensional representations of groups, Lie (super)algebras, and quantum (super)groups. An essential tool in studying these categories is the trace of an endomorphism and the dimension of object. Using low dimensional topology we generalize these notions and prove that these functions provide new insights into representation theory. (Received August 18, 2009)