1057-55-380   **Kate Ponto*** (`kponto1@nd.edu`), 255 Hurley Hall, Notre Dame, IN 46556-4618. *Equivariant fixed point invariants.*

There is an integer, called the Lefschetz number, associated to each endomorphism of a closed smooth manifold. The Lefschetz fixed point theorem states that the Lefschetz number of an endomorphism with no fixed points is zero. Unfortunately, this number can also be zero when the endomorphism has fixed points and all endomorphisms homotopic to it have fixed points.

The Lefschetz number admits a refinement, called the Reidemeister trace, that (with some hypotheses) is zero if and only if the endomorphism is homotopic to a fixed point free endomorphism. This gives a converse to the Lefschetz fixed point theorem.

The Reidemeister trace has three equivalent, but very different descriptions. Generalizations of two of these descriptions have been studied in the case of spaces with an action by a finite group. I will discuss a generalization of the third description to the equivariant case and describe how it compares with the other two descriptions. (Received January 26, 2010)