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**J. Scott Carter** and **Masahico Saito\*** ([saito@math.usf.edu](mailto:saito@math.usf.edu)). *Quandle Cohomology and Cocycle Knot Invariants with Inner Automorphism Actions*. Preliminary report.

Quandle operations induce quandle automorphisms that form the inner-automorphism group of a quandle. Quandle homology theories are defined using coefficients that are modules over the inner-automorphism group. Invariants of knots and knotted surfaces are defined using 2- and 3-cocycles. A similar situation for categorical self-distributive maps in Hopf algebras is discussed. Relations to other quandle homology theories and invariants defined earlier are studied. (Received September 08, 2009)