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**Quandle Cocycle Invariants for Knots, Knotted Surfaces and  
Knotted 3-Manifolds**

*Abstract.* The quandle is an algebraic structure. Carter, Jelsovsky, Kamada, Langford and Saito (1999, 2003) built the quandle cohomology theory. They found invariants of knots and knotted surfaces in the 2<sup>nd</sup> and the 3<sup>rd</sup> quandle cohomology. Similar invariant exists for knotted 3-manifolds in  $S^5$  in the 4<sup>th</sup> quandle cohomology.