HOPF ALGEBRAS GIVING QUANDLE COCYCLE INVARIANTS

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For a quandle X and a quandle 2-cocycle ϕ whose values are in a module A, there exists an invariant $\Phi_\phi(L)$ of a link L, which is called a quandle 2-cocycle invariant. In my talk, We construct a Hopf algebra $H(X;\phi)$ with a co-braiding $\mathcal{R}$ which gives Φ_ϕ through its co-action on $V = \bigoplus_{i\in X} \mathbb{Z}[A]e_i$.

Secondly, there are some generalizations of quandle co-homologies. The twisted quandle co-homology is one of them. Carter, Elhamdadi, Graña and Saito introduced a new knot invariant $\Phi_\phi^{\mathrm{Tw}}(L)$ by twisted quandle co-cycle ϕ whose values are in a X-module M. I demonstrate the identification of this invariant with the eigenvalue of some map from $\mathbb{Z}[M]$ to $\mathbb{Z}[M]$. Through this identification, we also get a new representation of braid group B_n of n strings.

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