

SMASH (CO)PRODUCTS AND SKEW PAIRINGS

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Abstract

Let τ be an invertible skew pairing on (B, H) , where B and H are Hopf algebras in a symmetric monoidal category $\mathcal{C}$ with (co)equalizers. Assume that H is quasitriangular. Then we obtain a new algebra structure such that B is a Hopf algebra in the braided category ${}^H_H\mathcal{YD}$ and there exists a Hopf algebra isomorphism $w: B \infty H \rightarrow B \bowtie_\tau H$ in $\mathcal{C}$, where $B \infty H$ is a Hopf algebra with (co)algebra structure the smash (co)product and $B \bowtie_\tau H$ is the Hopf algebra defined by Doi and Takeuchi.

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