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*Computing the Brauer group of certain quasi-triangular Hopf algebras*

In this talk we will attain a deeper understanding of recent computations of the Brauer group of some quasi-triangular Hopf algebras by explaining why a direct product decomposition for this group holds and describing one of the factors occurring in it. For a Hopf algebra  $B$  in a braided monoidal category  $\mathcal{C}$ , and under certain assumptions on the braiding (fulfilled if  $\mathcal{C}$  is symmetric), we will show that:

- (1) The Brauer group  $\text{BM}(\mathcal{C} ; B)$  of  $B$ -module algebras is isomorphic to  $\text{Br}(\mathcal{C}) \times \text{Gal}(\mathcal{C} ; B)$ , where  $\text{Br}(\mathcal{C})$  is the Brauer group of  $\mathcal{C}$  and  $\text{Gal}(\mathcal{C} ; B)$  the group of  $B$ -Galois objects;
- (2)  $\text{BM}(\mathcal{C} ; B)$  contains a subgroup isomorphic to  $\text{Br}(\mathcal{C}) \times \text{H}^2(\mathcal{C} ; B, I)$ , where  $\text{H}^2(\mathcal{C} ; B, I)$  is the second Sweedler cohomology group of  $B$  with values in the unit object  $I$  of  $\mathcal{C}$ .

These results will be applied to the Brauer group of a quasi-triangular Hopf algebra that is a Radford biproduct  $B \times H$ , where  $H$  is a usual Hopf algebra over a field, the Hopf subalgebra generated by the quasi-triangular structure  $\mathcal{R}$  is contained in  $H$  and  $B$  is a Hopf algebra in the category  ${}_H\mathcal{M}$  of left  $H$ -modules.

The results presented in this talk are part of a joint work with Bojana Femić (arXiv:0809.2517).