Hopf25

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Parallel sessions, Forum E
Friday, April 25, 2025
15h-15h25

Factorizations and double cross products of Hopf quasigroups

In this talk we introduce the notion of factorization for Hopf quasigroups in a symmetric monoidal setting and we prove that, if A and H are Hopf quasigroups such that their antipodes are isomorphisms, then a Hopf quasigroup X admits a factorization as $X = AH$ if, and only if, X is isomorphic to a double cross product of A and H as Hopf quasigroups. Also, we prove that this kind of double cross products are examples of wreath products induced by an a-monoidal distributive law between A and H. Moreover, we show that cross products of Hopf quasigroups with a skew pairing between them, Hopf quasigroups defined by the twisted double method, smash products of Hopf quasigroups and twisted smash products of Hopf quasigroups are examples of wreath products associated to a-monoidal distributive laws.

References:

[1] González Rodríguez, R.: Factorizations of Hopf quasigroups, Publicationes Mathematicae Debrecen 104, No 1-2, 195-219 (2024).
[2] González Rodríguez, R.: Distributive laws and Hopf quasigroups, `https://arxiv.org/abs/2402.02965` (2024).
[3] González Rodríguez, R.: Distributive laws in a non associative setting (preprint) (2024).