Hopf25

Lucrezia Bottegoni
University of Turin, Italy
Parallel sessions, Forum G
Tuesday, April 22, 2025
15h-15h25

Heavily semiseparable functors

Motivated by an example related to the tensor algebra, a stronger notion of separable functor, called heavily separable, was introduced in [2]. Semiseparable functors have been defined in [1] as a suitable weakening of separable functors. In this talk, we present the notion of "heavily semiseparable" functor, defined as a semiseparable functor through a natural transformation which is multiplicative. Then, a functor results to be heavily separable if, and only if, it is heavily semiseparable and faithful. We investigate heavy semiseparability with respect to adjunctions and Eilenberg-Moore categories. We show how heavy semiseparability can be described for functors traditionally attached to ring morphisms, corings, bimodules and Doi-Hopf modules. We present a stronger notion of separable monad, that we call "heavily separable monad", and we characterize the heavy semiseparability of adjoint functors in terms of the heavy (co)separability of the associated (co)monad. This talk is based on a work in progress [3].

References:

[1] Ardizzoni A., Bottegoni L., "Semiseparable functors", J. Algebra 638 (2024), 862-917.
[2] Ardizzoni A., Menini C., "Heavily separable functors", J. Algebra 543 (2020), 170-197.
[3] Bottegoni L., "Heavily semiseparable functors", in preparation.