Inform on Algebra

Algebra in Lecce

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Université Catholique de Louvain

16–17 September, h:14:30 – Aula Seminari

ACTIONS IN VARIETIES OF NON-ASSOCIATIVE ALGEBRAS

The aim of these lectures is to survey the main results on the representability of internal actions in varieties of non-associative algebras over a field.

The first part introduces the general framework of internal actions and split extensions within semi-abelian categories. We will discuss and compare three key notions: action representability, weak action representability, and action accessibility, with particular attention to the relationships and implications between them. We will then specialise to categories of interest and varieties of non-associative algebras. Classical examples, such as groups, Lie algebras, and associative algebras, will be provided to illustrate these concepts.

The second part will focus on recent results on this topic. We will explore the construction of the external weak actor in action accessible, operadic varieties of non-associative algebras, and the relationship between this construction and the universal strict general actor, analysing their respective roles in the study of weak action representability. Finally, we will devote attention to concrete examples - such as 2-nilpotent, Lie, Leibniz, and Jacobi-Jordan algebras - and conclude by outlining open questions and possible directions for future research.

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