A gentle introduction to the Connes-Moscovici's bialgebroid and its universal properties

Paolo Saracco

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Abstact

The aim of this talk is to present the Connes-Moscovici's bialgebroid as a universal object naturally associated with a Lie algebra acting by derivations on a non-necessarily commutative algebra. As such, we will see that it plays a role analogous to that of the universal enveloping algebra for a Lie algebra.

In an attempt to dull the abstract nature of the topic and to make the presentation more accessible, I will gently introduce the algebraic notions involved by finding inspiration from their counterparts in differential geometry: from elementary real smooth manifolds to Lie algebroids.

In its novel part, the talk will be based on my recent preprint *On anchored Lie algebras and the Connes-Moscovici's bialgebroid construction* (arXiv:2009.14656).