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Fundamental groups in $\mathcal{E}$-semi-abelian categories

In [1], Hopf formulae for the integral homology of a group were given using topological methods. G. Janelidze first recognized [6] that these descriptions are deeply connected with the categorical Galois-theoretic notion of covering morphism. Using this perspective, it was proved in [4], that the same formulae (from a formal point of view) can describe homology objects in a semi-abelian context by taking a Birkhoff reflector as coefficient functor. It turns out that these homology objects coincide with the so called fundamental groups arising in categorical Galois theory [5, 7]. In my talk, I shall present an extension of the work started in [2], allowing us not only to weaken the conditions on the base category but also to choose more general reflectors as coefficient functors. Several new examples will be considered in detail.

References

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