Semi-abelian categories, torsion theories and factorisation systems

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Semi-abelian categories [5] provide a suitable axiomatic context to study, among other things, the (co)homology of non-abelian algebraic structures (such as groups, compact groups, crossed modules, commutative rings, and Lie algebras), torsion and radical theories, and commutator theory. In this talk a brief introduction to some elementary properties of these categories will be given, before focusing on some recent developments concerning non-abelian torsion theories. In particular the relationship between torsion theories and monotone-light factorisations systems will be explained [1, 2]. Some of these results are also related to the study of Hopf formulae for homology in the context of semi-abelian categories [3, 4].

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References