Higher order central extensions

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Higher order central extensions of groups were introduced by G. Janelidze [4] as particular instances of the abstract notion of covering morphism from categorical Galois theory. More recently, the notion has been extended to and studied in semi-abelian and more general contexts (as for instance in [1, 2, 3]). Higher order central extensions are in a similar relationship to homology groups as classical covering maps of spaces to the fundamental group. As such, they prove to be a valuable tool in homological algebra.

This talk is intended to give an introduction to the subject and a brief overview of results and applications.

References

[1] T. Everaert, *Higher order central extensions in Mal'tsev categories*, preprint (2012)

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[3] M. Gran and V. Rossi, *Galois theory and double central extensions*, Homology, Homotopy Appl. **6** (2004), 283–298

[4] G. Janelidze, *Higher dimensional central extensions: A categorical approach to homology theory of groups*, Lecture at the International Category Theory Meeting CT95, Halifax, 1995