

# SEMINÁRIO DE ÁLGEBRA

## COHOMOLOGY OF CROSSED MODULES.

GURAM DONADZE

Institute of Cybernetics of Georgian Technical University, Tbilisi, Georgia

05/04/2024

14:30 Horas

Auditório do MAT

### Abstract.

Crossed modules were introduced by Whitehead [7]. They are algebraic models of 2-homotopy types [1]. There are two different approaches to (co)homology of crossed modules. The first one is via the classifying spaces of crossed modules [1], [3], [5]. The second one is purely algebraic and is based on cotriple cohomology [2]. These approaches are not equivalent but are connected via an exact sequence constructed in [6]. In [4] Pirashvili gave “cocycle” description of low dimensional cotriple co-homology with arbitrary coefficients. I am going to talk on the results obtained in [4].

### References

- [1] H.-J. Baues. Combinatorial Homotopy and 4-Dimensional Complexes, de Gruyter. Berlin, 1991.
- [2] P. Carrasco, A. Cegarra and A.R.-Grandjean. (Co)homology of crossed modules. J. of Pure and App. Algebra 168 (2002) 147-176.
- [3] T. Datuashvili and T. Pirashvili. On (co)homology of 2-types and crossed modules. J. of Algebra. 244(2001) 352-365.
- [4] G. Donadze and T. Pirashvili. On low dimensional cohomology of crossed modules with nontrivial coefficients. Advanced Studies: Euro-Tbilisi Mathematical Journal 16 (4) (2023) 143-173.
- [5] G. J. Ellis. Homology of 2-types, J. London Math. Soc. 46 (1992) 1-27.
- [6] A.R.-Grandjean, M. Ladra and T. Pirashvili. CCG-Homology of Crossed Modules via Classifying Spaces. J. of Algebra 229(2000) 660-665.
- [7] J.H.C. Whitehead. Combinatorial Homotopy II, Bull. Amer. Math. Soc. 55 (1949) 453- 496.