

RELATIVE BAER MODULES

JAN TRLIFAJ
UNIVERZITA KARLOVA, PRAHA

Let R be a ring and \mathcal{T} a torsion class of modules. A module M is *Baer* (relative to \mathcal{T}) provided that $\text{Ext}_R^1(M, T) = 0$ for each $T \in \mathcal{T}$. The structure theory of Baer modules comes in two steps: using set-theoretic methods, Baer modules are equipped with filtrations whose consecutive factors are countably presented Baer modules, and the latter are classified by purely algebraic means. In my talk, I will present some general tools for both steps together with applications to the structure of Baer modules when

- (1) \mathcal{T} is the class of all singular modules over any commutative domain (recent work of Angeleri-Bazzoni-Herbera), and over certain non-commutative domains;
- (2) \mathcal{T} is the class of all semiartinian modules over any commutative noetherian ring of finite Krull dimension (Greither-Herbera-Trlifaj);
- (3) \mathcal{T} is the class of all Ringel torsion modules over any hereditary artin algebra (Angeleri-Herbera-Kerner-Trlifaj).