

Title: The Schur multiplier and stem covers of Leibniz n -algebras

Author(s): José Manuel Casas, Manuel Avelino Insua and Natália Pacheco Rego

Given a free presentation $0 \rightarrow \mathcal{R} \rightarrow \mathcal{F} \xrightarrow{\rho} \mathcal{G} \rightarrow 0$ of a Leibniz n -algebra $\mathcal{G}$, the quotient $\frac{\mathcal{R} \cap [\mathcal{F}, \overset{n}{\dots}, \mathcal{F}]}{[\mathcal{R}, \mathcal{F}, \overset{n-1}{\dots}, \mathcal{F}]}$ is known as the Schur multiplier of $\mathcal{G}$. In the article, we construct a four-term exact sequence relating the Schur multiplier of $\mathcal{G}$ and $\mathcal{G}/\mathcal{N}$, from which we derive some formulas concerning dimensions of the underlying vector spaces of the corresponding Schur multipliers. Additionally, this exact sequence is useful to characterize nilpotency of Leibniz n -algebras. Finally, we characterize stem covers of Leibniz n -algebras, showing their existence in case of finite dimension. We also analyze the interaction between stem covers of Leibniz n -algebras and the Schur multiplier.

Address:

José Manuel Casas
Department of Applied Mathematics I,
E. E. Forestal
University of Vigo
36005 Pontevedra
Spain

Address:

Manuel Avelino Insua
Department of Applied Mathematics I,
E. E. Forestal
University of Vigo
36005 Pontevedra
Spain

Address:

Natália Pacheco Rego
Politechnical Institute of Cavado
and Ave Campus do IPCA
4750-810 Vila Frescainha
S. Martinho, Barcelos
Portugal