High nilpotency class and abelian Inn(G)?

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Abstract

If G is a group with abelian Inn(G) then G is nilpotent of class at most two. If G is a loop (a "nonassociative group") with abelian Inn(G) then G is nilpotent (Kepka, 1998), but no bound on the nilpotency class m is presently known. Until 2006, it was believed that $m \leq 2$, until Csorgo constructed an example with $m = 3$. I will explain what Inn(G) and nilpotency means in the nonassociative case, and report on the most recent progress. This is joint work with A. Drápal.

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