

# The Dietzmann property of some classes of groups with locally finite conjugacy classes

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A subgroup- and quotientgroup closed class  $\mathfrak{D}$  of groups is a *Dietzmann class* if the normal closure  $\langle x^G \rangle$  of an element  $x$  of an arbitrary group  $G$  is a  $\mathfrak{D}$ -group, provided that  $\langle x \rangle \in \mathfrak{D}$  and  $G$  induces on  $\langle x^G \rangle$  a  $\mathfrak{D}$ -group of automorphisms. For a set  $\pi$  of prime numbers, let  $\mathfrak{F}_\pi$  denote the class of finite,  $L\mathfrak{F}_\pi$  that of locally finite  $\pi$ -groups. For any subgroup- and quotientgroup closed class  $\mathfrak{X}$  with  $\mathfrak{F}_\pi \subseteq \mathfrak{X} \subseteq L\mathfrak{F}_\pi$ , let  $H\mathfrak{X}$  denote the class of hyper- $\mathfrak{X}$ -groups,  $(H\mathfrak{X})C$  that of groups with  $H\mathfrak{X}$ -conjugacy classes. We show that  $H\mathfrak{X}$  and  $(H\mathfrak{X})C$  - in particular  $H\mathfrak{F}_\pi$ ,  $(H\mathfrak{F}_\pi)C$  and  $(L\mathfrak{F}_\pi)C$  - are Dietzmann classes.

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