

RINGS WHOSE UNITS COMMUTE  
WITH NILPOTENT ELEMENTS

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**Abstract.** Rings with the property in the title are studied under the name of “uni” rings. These are compared with other known classes of rings and, since commutative rings and reduced rings trivially have this property, conditions which added to uni rings imply commutativity or reducedness are found.

**MSC 2010.** 13C99, 16D80, 16U80.

**Key words.** Uni ring, reduced ring, nilpotent-central ring, commuting nilpotents.

REFERENCES

- [1] G. Călugăreanu, *UU rings*, Carpathian J. Math., **31** (2015), 157–163.
- [2] G. Călugăreanu and T.Y. Lam, *Fine rings: A new class of simple rings*, J. Algebra Appl., **15** (2016), 1–18.
- [3] G. Călugăreanu, *A new class of semiprime rings*, Houston J. Math., **44** (2018), 21–30.
- [4] M. Chebotar, P.-H. Lee and E.R. Puczyłowski, *On prime rings with commuting nilpotent elements*, Proc. Amer. Math. Soc., **137** (2009), 2899–2903.
- [5] Y. Chun, Y.C. Jeon, S. Kang, K.N. Lee and Y. Lee, *A concept unifying the Armendariz and NI conditions*, Bull. Korean Math. Soc., **48** (2011), 115–127.
- [6] P. Danchev and T.Y. Lam, *Rings with unipotent units*, Publ. Math. Debrecen, **88** (2016), 449–466.
- [7] M.P. Drazin, *Rings with central idempotent or nilpotent elements*, Proc. Edinburgh Math. Soc., **9** (1958), 157–165.
- [8] E. Jespers, G. Olteanu, A. del Rio and I. Van Gelder, *Central units in integral group rings*, Proc. Amer. Math. Soc., **142** (2014), 2193–2209.
- [9] D. Khurana, G. Marks and A. Srivastava, *On unit-central rings*. In: *Advances in Ring Theory*, Birkhäuser, Springer Basel AG, Basel, 2010, 205–212.
- [10] T.Y. Lam, *Exercises in classical Ring Theory*, Problem Books in Mathematics, Springer-Verlag, New York, 1995.
- [11] L. Liang, L. Wang and Z. Liu, *On a generalization of semicommutative rings*, Taiwan. J. Math., **11** (2007), 1359–1368.
- [12] W.K. Nicholson and H.J. Springer, *Commutativity of rings with abelian or solvable units*, Proc. Amer. Math. Soc., **56** (1976), 59–62.
- [13] B. Ungor, S. Halicioğlu, H. Kose and A. Harmanci, *Rings in which every nilpotent is central*, Algebras, Groups, Geometries, **30** (2013), 1–18.

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