

Chelliah Selvaraj, Sudalaimuthu Santhakumar
Automorphism liftable modules

Comment.Math.Univ.Carolin. 59,1 (2018) 35 –44.

Abstract: We introduce the notion of an automorphism liftable module and give a characterization to it. We prove that category equivalence preserves automorphism liftable. Furthermore, we characterize semisimple rings, perfect rings, hereditary rings and quasi-Frobenius rings by properties of automorphism liftable modules. Also, we study automorphism liftable modules with summand sum property (SSP) and summand intersection property (SIP).

Keywords: dual automorphism invariant module; supplemented module; semisimple ring; perfect ring; summand sum property

AMS Subject Classification: 16L30, 16D40, 16W20

REFERENCES

- [1] Alkan M., Harmanci A., *On summand sum and summand intersection property of modules*, Turkish J. Math. **26** (2002), 131–147.
- [2] Bass H., *Finitistic dimension and a homological generalization of semiprimary rings*, Trans. Amer. Math. Soc. **95** (1960), 466–488.
- [3] Byrd K. A., *Some characterizations of uniserial rings*, Math. Ann. **186** (1970), 163–170.
- [4] Garcia J. L., *Properties of direct summands of modules*, Comm. Algebra **17** (1989), 73–92.
- [5] Golan J. S., *Characterization of rings using quasiprojective modules*, Israel J. Math. **8** (1970), 34–38.
- [6] Golan J. S., *Characterization of rings using quasiprojective modules II*, Proc. Amer. Math. Soc. **28** (1971), no. 2, 337–343.
- [7] Golan J. S., *Characterization of rings using quasiprojective modules III*, Proc. Amer. Math. Soc. **31** (1972), no. 2, 401–408.
- [8] Koşan M. T., Ha N. T. T., Quynh T. C., *Rings for which every cyclic module is dual automorphism-invariant*, J. Algebra Appl. **15** (2016), no. 5, 1650078, 11 pp.
- [9] Satyanarayana M., *Semisimple rings*, Amer. Math. Monthly **74** (1967), 1086.
- [10] Selvaraj C., Santhakumar S., *A note on dual automorphism-invariant modules*, J. Algebra Appl. **16** (2017), no. 2, 1750024, 11 pp.
- [11] Singh S., Srivastava A. K., *Dual automorphism-invariant modules*, J. Algebra **371** (2012), 262–275.
- [12] Tuganbaev A. A., *Automorphisms of submodules and their extensions*, Discrete Math. Appl. **23** (2013), no. 1, 115–124.
- [13] Tütüncü D. K., *A note on ADS*-modules*, Bull. Math. Sci. **2** (2012), 359–363.
- [14] Ware R., *Endomorphism rings of projective modules*, Trans. Amer. Math. Soc. **155** (1971), 233–256.