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Gr-(2, n)-ideals in graded commutative rings

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Abstract: Let G be a group with identity e and let R be a G -graded ring. In this paper, we introduce and study the concept of graded $(2, n)$ -ideals of R . A proper graded ideal I of R is called a graded $(2, n)$ -ideal of R if whenever $rst \in I$ where $r, s, t \in h(R)$, then either $rt \in I$ or $rs \in Gr(0)$ or $st \in Gr(0)$. We introduce several results concerning gr -(2, n)-ideals. For example, we give a characterization of graded $(2, n)$ -ideals and their homogeneous components. Also, the relations between graded $(2, n)$ -ideals and others that already exist, namely, the graded prime ideals, the graded 2-absorbing primary ideals, and the graded n -ideals are studied.

Keywords: gr -(2, n)-ideals; gr -2-absorbing primary ideals; gr -prime ideal

AMS Subject Classification: 13A02, 16W50

REFERENCES

- [1] Al-Zoubi K., Abu-Dawwas R., Çeken S., *On graded 2-absorbing and graded weakly 2-absorbing ideals*, Hacet. J. Math. Stat. **48** (2019), no. 3, 724–731.
- [2] Al-Zoubi K., Al-Turman F., Celikel E.Y., *gr*- n -ideals in graded commutative rings, Acta Univ. Sapientiae Math. **11** (2019), no. 1, 18–28.
- [3] Al-Zoubi K., Qarqaz F., *An intersection condition for graded prime ideals*, Boll. Unione Mat. Ital. **11** (2018), no. 4, 483–488.
- [4] Al-Zoubi K., Sharafat N., *On graded 2-absorbing primary and graded weakly 2-absorbing primary ideals*, J. Korean Math. Soc. **54** (2017), no. 2, 675–684.
- [5] Atani S. E., *On graded weakly primary ideals*, Quasigroups Related Systems **13** (2005), no. 2, 185–191.
- [6] Badawi A., Tekir U., Yetkin E., *On 2-absorbing primary ideals in commutative rings*, Bull. Korean Math. Soc. **51** (2014), no. 4, 1163–1173.
- [7] Ebrahimi Atani S., Farzalipour F., *Notes on the graded prime submodules*, Int. Math. Forum **1** (2006), no. 38, 1871–1880.
- [8] Năstăsescu C., van Oystaeyen F., *Graded and Filtered Rings and Modules*, Lecture Notes in Mathematics, 758, Springer, Berlin, 1979.
- [9] Năstăsescu C., van Oystaeyen F., *Graded Ring Theory*, North-Holland Publishing, Amsterdam, 1982.
- [10] Năstăsescu C., van Oystaeyen F., *Methods of Graded Rings*, Lecture Notes in Mathematics, 1836, Springer, Berlin, 2004
- [11] Refai M., Al-Zoubi K., *On graded primary ideals*, Turkish J. Math. **28** (2004), no. 3, 217–229.
- [12] Refai M., Hailat M., Obiedat S., *Graded radicals and graded prime spectra*, Far East J. Math. Sci. (FJMS) Special Volume, Part I (2000), 59–73.
- [13] Tamekkante M., Bouba El M., *(2, n)-ideals of commutative rings*, J. Algebra Appl. **18** (2019), no. 6, 1950103, 12 pages.