

Commutative Rings Theory Days 2010

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FORMAL POWER SERIES OVER STRONGLY HOPFIAN RINGS

SANA HIZEM

A commutative ring R is said to be strongly Hopfian if the chain of annihilators $\text{ann}(a) \subseteq \text{ann}(a^2) \subseteq \dots$ stabilizes for each $a \in R$. The class of strongly Hopfian rings contains Noetherian rings, Laskerian rings, rings satisfying acc on d-annihilators and those satisfying acc on d-colons, rings satisfying accr, rings which are embeddable in a zero dimensional ring, in particular zero dimensional rings are strongly Hopfian. Recall that in [1], the authors proved that for a commutative ring R , the ring R is strongly Hopfian if and only if the ring $R[X]$ is. In this talk, we are interested in the class of strongly Hopfian rings and in the transfer of this property from a commutative ring R to the ring of the power series $R[[X]]$. We give necessary and sufficient conditions in order that $R[[X]]$ is strongly Hopfian. We provide an example of a strongly Hopfian ring R such that $R[[X]]$ is not strongly Hopfian.

[1] A. Hmaimou, A. Kaidi, E. Sanchez Campus. Generalized fitting modules and rings. *Journal of Algebra*. 308 (2007), 199-214.

FACULTY OF SCIENCES, MONASTIR, TUNISIA

E-mail address: hizems@yahoo.fr