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Artinianness of formal local cohomology modules

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Abstract: Let \mathfrak{a} be an ideal of Noetherian local ring (R, \mathfrak{m}) and M a finitely generated R -module of dimension d . In this paper we investigate the Artinianness of formal local cohomology modules under certain conditions on the local cohomology modules with respect to \mathfrak{m} . Also we prove that for an arbitrary local ring (R, \mathfrak{m}) (not necessarily complete), we have $\text{Att}_R(\mathfrak{F}_{\mathfrak{a}}^d(M)) = \text{MinV}(\text{Ann}_R \mathfrak{F}_{\mathfrak{a}}^d(M))$.

Keywords: formal local cohomology; local cohomology

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REFERENCES

- [1] Asgharzadeh M., Divaani-Aazar K., *Finiteness properties of formal local cohomology modules and Cohen-Macaulayness*, Comm. Algebra **39** (2011), no. 3, 1082–1103.
- [2] Bijan-Zadeh M. H., Rezaei S., *Artinianness and attached primes of formal local cohomology modules*, Algebra Colloq. **21** (2014), no. 2, 307–316.
- [3] Brodmann M., Sharp R. Y., *Local cohomology: an algebraic introduction with geometric applications*, Cambridge Studies in Advanced Mathematics, 60, Cambridge University Press, 1998.
- [4] Eghbali M., *On Artinianness of formal local cohomology, colocalization and coassociated primes*, Math. Scand. **113** (2013), no. 1, 5–19.
- [5] MacDonal I. G., *Secondary representations of modules over a commutative ring*, Symposia Mathematica, Vol. XI, Convegno di Algebra Commutativa, INDAM, Rome, 1971, Academic Press, London, 1973, pages 23–43.
- [6] Macdonald I. G., Sharp R. Y., *An elementary proof of the non-vanishing of certain local cohomology modules*, Quart. J. Math. Oxford Ser. (2) **23** (1972), 197–204.
- [7] Melkersson L., Schenzel P., *The co-localization of an Artinian module*, Proc. Edinburgh Math. Soc. (2) **38** (1995), no. 1, 121–131.
- [8] Peskine C., Szpiro L., *Dimension projective finie et cohomologie locale. Applications à la démonstration de conjectures de M. Auslander, H. Bass et A. Grothendieck*, Inst. Hautes Études Sci. Publ. Math. No. **42** (1972), 47–119 (French).
- [9] Rezaei S., *Minimaxness and finiteness properties of formal local cohomology modules*, Kodai Math. J. **38** (2015), no. 2, 430–436.
- [10] Rezaei S., *Some results on top local cohomology and top formal local cohomology modules*, Comm. Algebra **45** (2017), no. 5, 1935–1940.

- [11] Schenzel P., *On formal local cohomology and connectedness*, J. Algebra **315** (2007), no. 2, 894–923.
- [12] Sharp R. Y., *Some results on the vanishing of local cohomology modules*, Proc. London Math. Soc. (3) **30** (1975), 177–195.