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Annihilators of local cohomology in unramified mixed characteristic

Annihilators of local cohomology modules play an essential role in the proofs of many fundamental results in the homological commutative algebra. In 2019, Hochster asked whether the top local cohomology module of a domain, with support in a given ideal, must be faithful. In 2020, Hochster and Jeffries gave an affirmative answer for domains of positive characteristic when the cohomological dimension of the ideal equals its minimum number of generators. Later, in mixed characteristic, Datta, Switala, and Zhang (2023) constructed a counterexample to Hochster's question, showing that faithfulness can fail even for regular local rings of mixed characteristic. In this talk, we compute the annihilators of local cohomology modules with support in ideals associated with standard triangulations of certain topological spaces. We will also see some partial progress on answering Hochster's question in characteristic zero.