TOR-PAIRS AND TENSOR-ORTHOGONAL PAIRS OVER COMMUTATIVE NOETHERIAN RINGS

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ABSTRACT. Over a commutative noetherian ring, collections of subsets of the spectrum classify families of objects in its derived category and module category. In the derived category, this includes the compactly generated t-structures by sp-filtrations due to Alonso-Jeremías-Saorín, and localising subcategories by subsets of the spectrum due to Neeman. Similarly, in the module category, finite sequences of specialisation closed subsets of the spectrum which do not contain the associated primes of the ring, classify cotilting cotorsion pairs, as shown by Angeleri Hügel-Pospíšil-Šťovíček-Trlifaj.

We consider an extension of the above results: On the derived category side, we introduce tensor-structures, and we show that the ones generated by bounded complexes of flat modules are in bijective correspondence with certain sequences of subsets of the spectrum of the ring. On the module category side, we consider hereditary Tor-pairs generated by modules of bounded flat dimension over commutative noetherian rings, and show that these are classified by sequences of subsets of the spectrum with a certain condition depending on the depth of the localisations at primes of the spectrum.

This talk is based on joint work with Dolors Herbera and Michal Hrbek.