

Very flat modules and sheaves

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Abstract: We investigate under which assumptions a subclass of flat quasi-coherent sheaves on a quasi-compact and semi-separated scheme allows to “mock” both the homotopy category of projective modules and the homotopy category of totally acyclic complexes of projectives. Our methods are based on module theoretic properties of the subclass of flat modules involved as well as their behaviour with respect to Zariski localizations. As a consequence we get that, for such schemes, the derived category of flats is equivalent to the derived category of very flats and the equivalence restricts to the full subcategories of F-totally acyclic complexes. Furthermore, the equivalences are derived from a Quillen equivalence between the corresponding models.

The talk is based on a joint work with Alexander Slávik.