

**Lipman, Joseph; Neeman, Amnon****Quasi-perfect scheme-maps and boundedness of the twisted inverse image functor.** (English)

Zbl 1124.14003

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Summary: For a map  $f: X \rightarrow Y$  of quasi-compact quasi-separated schemes, we discuss quasi-perfection, i.e., the right adjoint  $f^\times$  of  $\mathbf{R}f_*$  respects small direct sums. This is equivalent to the existence of a functorial isomorphism  $f^\times \mathcal{O}_Y \otimes^{\mathbf{L}} \mathbf{L}f^*(-) \xrightarrow{\sim} f^\times(-)$ ; to quasi-properness (preservation by  $\mathbf{R}f$  of pseudo-coherence, or just properness in the noetherian case) plus boundedness of  $\mathbf{L}f^*$  (finite tor-dimensionality), or of the functor  $f^\times$ ; and to some other conditions. We use a globalization, previously known only for divisorial schemes, of the local definition of pseudo-coherence of complexes, as well as a refinement of the known fact that the derived category of complexes with quasi-coherent homology is generated by a single perfect complex.

**MSC:**

- 14A15 Schemes and morphisms
- 13D02 Syzygies, resolutions, complexes and commutative rings
- 13D05 Homological dimension and commutative rings
- 14F05 Sheaves, derived categories of sheaves, etc. (MSC2010)
- 18E30 Derived categories, triangulated categories (MSC2010)

Cited in **20** Documents**Full Text:** [arXiv](#)