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	Titolo	Foundations of Grothendieck Duality for Diagrams of Schemes [[electronic resource] /] / by Joseph Lipman, Mitsuyasu Hashimoto
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	Nota di contenuto	Joseph Lipman: Notes on Derived Functors and Grothendieck Duality -- Derived and Triangulated Categories -- Derived Functors -- Derived Direct and Inverse Image -- Abstract Grothendieck Duality for Schemes -- Mitsuyasu Hashimoto: Equivariant Twisted Inverses -- Commutativity of Diagrams Constructed from a Monoidal Pair of Pseudofunctors -- Sheaves on Ringed Sites -- Derived Categories and Derived Functors of Sheaves on Ringed Sites -- Sheaves over a Diagram of S-Schemes -- The Left and Right Inductions and the Direct and Inverse Images -- Operations on Sheaves Via the Structure Data -- Quasi-Coherent Sheaves Over a Diagram of Schemes -- Derived Functors of Functors on Sheaves of Modules Over Diagrams of Schemes -- Simplicial Objects -- Descent Theory -- Local Noetherian Property -- Groupoid of Schemes -- Bökstedt—Neeman Resolutions and HyperExt Sheaves -- The Right Adjoint of the Derived Direct Image Functor -- Comparison of Local Ext Sheaves -- The Composition of Two Almost-Pseudofunctors -- The Right Adjoint of the Derived Direct Image Functor of a Morphism of Diagrams -- Commutativity of Twisted Inverse with Restrictions -- Open Immersion Base Change -- The Existence of Compactification and Composition Data for Diagrams of

Schemes Over an Ordered Finite Category -- Flat Base Change -- Preservation of Quasi-Coherent Cohomology -- Compatibility with Derived Direct Images -- Compatibility with Derived Right Inductions -- Equivariant Grothendieck's Duality -- Morphisms of Finite Flat Dimension -- Cartesian Finite Morphisms -- Cartesian Regular Embeddings and Cartesian Smooth Morphisms -- Group Schemes Flat of Finite Type -- Compatibility with Derived G-Invariance -- Equivariant Dualizing Complexes and Canonical Modules -- A Generalization of Watanabe's Theorem -- Other Examples of Diagrams of Schemes.

Sommario/riassunto	The first part written by Joseph Lipman, accessible to mid-level graduate students, is a full exposition of the abstract foundations of Grothendieck duality theory for schemes (twisted inverse image, tor-independent base change,...), in part without noetherian hypotheses, and with some refinements for maps of finite tor-dimension. The ground is prepared by a lengthy treatment of the rich formalism of relations among the derived functors, for unbounded complexes over ringed spaces, of the sheaf functors tensor, hom, direct and inverse image. Included are enhancements, for quasi-compact quasi-separated schemes, of classical results such as the projection and Künneth isomorphisms. In the second part, written independently by Mitsuyasu Hashimoto, the theory is extended to the context of diagrams of schemes. This includes, as a special case, an equivariant theory for schemes with group actions. In particular, after various basic operations on sheaves such as (derived) direct images and inverse images are set up, Grothendieck duality and flat base change for diagrams of schemes are proved. Also, dualizing complexes are studied in this context. As an application to group actions, we generalize Watanabe's theorem on the Gorenstein property of invariant subrings.