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Nota di contenuto	Homological Algebra on an Adams Algebraic Stack -- Lyubeznik Numbers of Local Rings and Linear Strands of Graded Ideals -- The Heart of a t-Structure Induced by a n-Tilting Module -- On Some Local Cohomology Spectral Sequences -- Homotopy Representations of Classifying Spaces -- Decomposing Gorenstein Rings as Connected Sums -- Rigid and Test Modules -- Tate Homology Beyond Gorenstein Rings -- On the Classification of Artin Algebras and the Inverse System of Macaulay -- Purity in Categories of Sheaves -- Idempotent Functors and Nilpotent Spaces -- Decomposition Spaces and Incidence (Co) Algebras -- Cellular Approximations for Fusion Systems -- Homological Epimorphisms and the Lie Bracket in Hochschild Cohomology -- Gorenstein Projective Precovers -- Hochschild Homology on Schemes and Fundamental Class -- A Remark on Leclerc's Frobenius Categories -- Atom-Molecule Correspondence in Grothendieck Categories -- Proalgebraic Crossed Modules of Quasirational Presentations -- Some F-Invariants for Quotient Singularities -- Strong Generation of Some Derived Categories of Schemes -- Regularity of Products over Quadratic Hypersurfaces -- Phantom Maps and Representability -- Six Operations on dg Enhancements of Derived Categories of Sheaves and Applications --

Tensor Product of Dualizing Complexes over a Field -- Strong Generators in Tensor Triangulated Categories -- Abelian Model Structures and Applications -- Singularity Categories of Stable Resolving Subcategories and Applications to Gorenstein Rings -- Classes of Flat Modules Arising in Algebraic Geometry and Approximations -- The Dual Graph of an Arithmetically Gorenstein Scheme -- Baez-Dolan Stabilization via (Semi-)Model Categories of Operads -- Vanishing of Tor -- Prime Ideals in Noetherian Rings.

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Sommario/riassunto

This book includes 33 expanded abstracts of selected talks given at the two workshops "Homological Bonds Between Commutative Algebra and Representation Theory" and "Brave New Algebra: Opening Perspectives," and the conference "Opening Perspectives in Algebra, Representations, and Topology," held at the Centre de Recerca Matemàtica (CRM) in Barcelona between January and June 2015. These activities were part of the one-semester intensive research program "Interactions Between Representation Theory, Algebraic Topology and Commutative Algebra (IRTATCA)." Most of the abstracts present preliminary versions of not-yet published results and cover a large number of topics (including commutative and non commutative algebra, algebraic topology, singularity theory, triangulated categories, representation theory) overlapping with homological methods. This comprehensive book is a valuable resource for the community of researchers interested in homological algebra in a broad sense, and those curious to learn the latest developments in the area. It appeals to established researchers as well as PhD and postdoctoral students who want to learn more about the latest advances in these highly active fields of research.

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