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Titolo	Intersection Homology & Perverse Sheaves : with Applications to Singularities / / by Laureniu G. Maxim
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ISBN	3-030-27644-9
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (278 pages) : illustrations
Collana	Graduate Texts in Mathematics, , 2197-5612 ; ; 281
Disciplina	514.23
Soggetti	Algebraic topology Algebraic geometry Functions of complex variables Algebraic Topology Algebraic Geometry Several Complex Variables and Analytic Spaces
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface -- 1. Topology of singular spaces: motivation, overview -- 2. Intersection Homology: definition, properties -- 3. L-classes of stratified spaces -- 4. Brief introduction to sheaf theory -- 5. Poincaré-Verdier Duality -- 6. Intersection homology after Deligne -- 7. Constructibility in algebraic geometry -- 8. Perverse sheaves -- 9. The Decomposition Package and Applications -- 10. Hypersurface singularities. Nearby and vanishing cycles -- 11. Overview of Saito's mixed Hodge modules, and immediate applications -- 12. Epilogue -- Bibliography -- Index.
Sommario/riassunto	This textbook provides a gentle introduction to intersection homology and perverse sheaves, where concrete examples and geometric applications motivate concepts throughout. By giving a taste of the main ideas in the field, the author welcomes new readers to this exciting area at the crossroads of topology, algebraic geometry, analysis, and differential equations. Those looking to delve further into the abstract theory will find ample references to facilitate navigation of both classic and recent literature. Beginning with an introduction to

intersection homology from a geometric and topological viewpoint, the text goes on to develop the sheaf-theoretical perspective. Then algebraic geometry comes to the fore: a brief discussion of constructibility opens onto an in-depth exploration of perverse sheaves. Highlights from the following chapters include a detailed account of the proof of the Beilinson–Bernstein–Deligne–Gabber (BBDG) decomposition theorem, applications of perverse sheaves to hypersurface singularities, and a discussion of Hodge-theoretic aspects of intersection homology via Saito's deep theory of mixed Hodge modules. An epilogue offers a succinct summary of the literature surrounding some recent applications. Intersection Homology & Perverse Sheaves is suitable for graduate students with a basic background in topology and algebraic geometry. By building context and familiarity with examples, the text offers an ideal starting point for those entering the field. This classroom-tested approach opens the door to further study and to current research.