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Titolo	Cell Complexes, Poset Topology and the Representation Theory of Algebras Arising in Algebraic Combinatorics and Discrete Geometry
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Collana	Memoirs of the American Mathematical Society ; ; v.274
Classificazione	20M3016G1005E1052C3552C4016S3720M2552B0516E10
Altri autori (Persone)	SaliolaFranco SteinbergBenjamin
Disciplina	512/.27 512.27
Soggetti	CW complexes Semigroups Partially ordered sets Representations of algebras Combinatorial analysis Combinatorial geometry Group theory and generalizations -- Semigroups -- Representation of semigroups; actions of semigroups on sets Associative rings and algebras -- Representation theory of rings and algebras -- Representations of Artinian rings Combinatorics -- Algebraic combinatorics -- Combinatorial aspects of representation theory Convex and discrete geometry -- Discrete geometry -- Arrangements of points, flats, hyperplanes Convex and discrete geometry -- Discrete geometry -- Oriented matroids Associative rings and algebras -- Rings and algebras arising under various constructions -- Quadratic and Koszul algebras Group theory and generalizations -- Semigroups -- Semigroup rings, multiplicative semigroups of rings Convex and discrete geometry -- Polytopes and polyhedra -- Combinatorial properties (number of faces, shortest paths, etc.) Associative rings and algebras -- Homological methods -- Homological dimension
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa

Livello bibliografico	Monografia
Note generali	"Volume 274, November 2021."
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Left regular bands, hyperplane arrangements, oriented matroids and generalizations -- Regular CW complexes and CW posets -- Algebras -- Projective resolutions and global dimension -- Quiver presentations -- Quadratic and Koszul duals -- Injective envelopes for hyperplane arrangements, oriented matroids, CAT(0) cube complexes and COMs -- Enumeration of cells for CW left regular bands -- Cohomological dimension.
Sommario/riassunto	"The purpose of the present monograph is to further develop and deepen the connection between left regular bands and poset topology. This allows us to compute finite projective resolutions of all simple modules of unital left regular band algebras over fields and much more. In the process, we are led to define the class of CW left regular bands as the class of left regular bands whose associated posets are the face posets of regular CW complexes. Most of the examples that have arisen in the literature belong to this class. A new and important class of examples is a left regular band structure on the face poset of a CAT(0) cube complex. Also, the recently introduced notion of a COM (complex of oriented matroids or conditional oriented matroid) fits nicely into our setting and includes CAT(0) cube complexes and certain more general CAT(0) zonotopal complexes. A fairly complete picture of the representation theory for CW left regular bands is obtained"--