1. Record Nr. UNINA9910820822103321

Titolo	Algebra and applications . 1 Non-associative algebras and categories / / coordinated by Abdenacer Makhlouf
Pubbl/distr/stampa	London, England ; ; Hoboken, New Jersey : , : Wiley : , : ISTE, , [2020] ©2020
ISBN	1-119-81815-X 1-119-81817-6 1-119-81816-8
Descrizione fisica	1 online resource (369 pages)
Disciplina	512.9
Soggetti	Algebra
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Half-Title Page -- Title Page -- Copyright Page -- Contents -- Foreword -- 1 Jordan Superalgebras -- 1.1. Introduction -- 1.2. Tits-Kantor-Koecher construction -- 1.3. Basic examples (classical superalgebras) -- 1.4. Brackets -- 1.5. Cheng-Kac superalgebras -- 1.6. Finite dimensional simple Jordan superalgebras -- 1.6.1. Case F is algebraically closed and char F = 0 -- 1.6.2. Case char F = p > 2, the even part J¯0 is semisimple -- 1.6.3. Case char F = p > 2, the even part J¯0 is not semisimple -- 1.6.4. Non-unital simple Jordan superalgebras -- 1.7. Finite dimensional representations -- 1.7.1. Superalgebras of rank 3 -- 1.7.2. Superalgebras of rank 2 -- 1.8. Jordan superconformal algebras -- 1.9. References -- 2 Composition Algebras -- 2.1. Introduction -- 2.2. Quaternions and octonions -- 2.2.1. Quaternions -- 2.2.2. Rotations in three(and four-) dimensional space -- 2.2.3. Octonions -- 2.3. Unital composition algebras -- 2.3.1. The Cayley-Dickson doubling process and the generalized Hurwitz theorem -- 2.3.2. Isotropic Hurwitz algebras -- 2.4. Symmetric composition algebras -- 2.5. Triality -- 2.6. Concluding remarks -- 2.7. Acknowledgments -- 2.8. References -- 3 Graded-Division Algebras -- 3.1. Introduction -- 3.2. Background on gradings -- 3.2.1. Gradings induced by a group homomorphism -- 3.2.2. Weak isomorphism and equivalence -- 3.2.3. Basic properties of division

gradings -- 3.2.4. Graded presentations of associative algebras -- 3.2.5. Tensor products of division gradings -- 3.2.6. Loop construction -- 3.2.7. Another construction of graded-simple algebras -- 3.3. Graded-division algebras over algebraically closed fields -- 3.4. Real graded-division associative algebras -- 3.4.1. Simple graded-division algebras -- 3.4.2. Pauli gradings -- 3.4.3. Commutative case. 3.4.4. Non-commutative graded-division algebras with one-dimensional homogeneous components -- 3.4.5. Equivalence classes of graded-division algebras with one-dimensional homogeneous components -- 3.4.6. Graded-division algebras with non-central two-dimensional identity components -- 3.4.7. Graded-division algebras with four-dimensional identity components -- 3.4.8. Classification of real graded-division algebras, up to isomorphism -- 3.5. Real loop algebras with a non-split centroid -- 3.6. Alternative algebras -- 3.6.1. Cayley-Dickson doubling process -- 3.6.2. Gradings on octonion algebras -- 3.6.3. Graded-simple real alternative algebras -- 3.6.4. Graded-division real alternative algebras -- 3.7. Gradings of fields -- 3.8. References -- 4 Non-associative C*-algebras -- 4.1. Introduction -- 4.2. JB-algebras -- 4.3. The non-associative Vidav-Palmer and Gelfand-Naimark theorems -- 4.4. JB*-triples -- 4.5. Past, present and future of non-associative C*-algebras -- 4.6. Acknowledgments -- 4.7. References -- 5 Structure of H -algebras -- 5.1. Introduction -- 5.2. Preliminaries: aspects of the general theory -- 5.3. Ultraproducts of H -algebras -- 5.4. Quadratic H -algebras -- 5.5. Associative H -algebras -- 5.6. Flexible H -algebras -- 5.7. Non-commutative Jordan H -algebras -- 5.8. Jordan H -algebras -- 5.9. Moufang H -algebras -- 5.10. Lie H -algebras -- 5.11. Topics closely related to Lie H -algebras -- 5.12. Two-graded H -algebras -- 5.13. Other topics: beyond the H -algebras -- 5.14. Acknowledgments -- 5.15. References -- 6 Krichever-Novikov Type Algebras: Definitions and Results -- 6.1. Introduction -- 6.2. The Virasoro algebra and its relatives -- 6.3. The geometric picture -- 6.3.1. The geometric realizations of the Witt algebra -- 6.3.2. Arbitrary genus generalizations -- 6.3.3. Meromorphic forms -- 6.4. Algebraic structures.
6.4.1. Associative structure -- 6.4.2. Lie and Poisson algebra structure -- 6.4.3. The vector field algebra and the Lie derivative -- 6.4.4. The algebra of differential operators -- 6.4.5. Differential operators of all degrees -- 6.4.6. Lie superalgebras of half forms -- 6.4.7. Jordan superalgebra -- 6.4.8. Higher genus current algebras -- 6.4.9. KN-type algebras -- 6.5. Almost-graded structure -- 6.5.1. Definition of almost-gradedness -- 6.5.2. Separating cycle and KN pairing -- 6.5.4. The algebras -- 6.5.5. Triangular decomposition and filtrations -- 6.6. Central extensions -- 6.6.1. Central extensions and cocycles -- 6.6.2. Geometric cocycles -- 6.6.3. Uniqueness and classification of central extensions -- 6.7. Examples and generalizations -- 6.7.1. The genus zero and three-point situation -- 6.7.2. Genus zero multipoint algebras - integrable systems -- 6.7.3. Deformations -- 6.8. Lax operator algebras -- 6.9. Fermionic Fock space -- 6.9.1. Semi-infinite forms and fermionic Fock space representations -- 6.9.2. b - c systems -- 6.10. Sugawara representation -- 6.11. Application to moduli space -- 6.12. Acknowledgments -- 6.13. References -- 7 An Introduction to Pre-Lie Algebras -- 7.1. Introduction -- 7.1.1. Explanation of notions -- 7.1.2. Two fundamental properties -- 7.1.3. Some subclasses -- 7.1.4. Organization of this chapter -- 7.2. Some appearances of pre-Lie algebras -- 7.2.2. Deformation complexes of algebras and right-symmetric algebras -- 7.2.3. Rooted tree algebras: free pre-Lie algebras -- 7.2.4. Complex structures on Lie algebras -- 7.2.5. Symplectic structures on Lie groups and Lie algebras, phase spaces of

Lie algebras and Kahler structures -- 7.2.6. Vertex algebras -- 7.3. Some basic results and constructions of pre-Lie algebras -- 7.3.1. Some basic results of pre-Lie algebras.
7.3.2. Constructions of pre-Lie algebras from some known structures -- 7.4. Pre-Lie algebras and CYBE -- 7.4.1. The existence of a compatible pre-Lie algebra on a Lie algebra -- 7.4.2. CYBE: unification of tensor and operator forms -- 7.4.3. Pre-Lie algebras, O-operators and CYBE -- 7.4.4. An algebraic interpretation of "left-symmetry": construction from Lie algebras revisited -- 7.5. A larger framework: Lie analogues of Loday algebras -- 7.5.1. Pre-Lie algebras, dendriform algebras and Loday algebras -- 7.5.2. L-dendriform algebras -- 7.5.3. Lie analogues of Loday algebras -- 7.6. References -- 8 Symplectic, Product and Complex Structures on 3-Lie Algebras -- 8.1. Introduction -- 8.2. Preliminaries -- 8.3. Representations of 3-pre-Lie algebras -- 8.4. Symplectic structures and phase spaces of 3-Lie algebras -- 8.5. Product structures on 3-Lie algebras -- 8.6. Complex structures on 3-Lie algebras -- 8.7. Complex product structures on 3-Lie algebras -- 8.8. Para-Kahler structures on 3-Lie algebras -- 8.9. Pseudo-Kahler structures on 3-Lie algebras -- 8.10. References -- 9 Derived Categories -- 9.1. Introduction -- 9.2. Grothendieck's definition -- 9.3. Verdier's definition -- 9.4. Triangulated structure -- 9.5. Derived functors -- 9.6. Derived Morita theory -- 9.7. Dg categories -- 9.7.1. Dg categories and functors -- 9.7.2. The derived category -- 9.7.3. Derived functors -- 9.7.4. Dg quotients -- 9.7.5. Invariants -- 9.8. References -- List of Authors -- Index -- EULA.