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Chapter 7. Ilwoo, C., Jorgensen, P.E.T: Spectral Analysis of Equations over Quaternions -- Chapter 8. Djinja, D., Silvestrov, S., Behakanira Tumwesigye, A.: Multiplication and linear integral operators on Lp spaces representing polynomial covariant type commutation relations -- Chapter 9. Djinja, D., Silvestrov, S., Behakanira Tumwesigye, A.: Representations of polynomial covariant type commutation relations bypiecewise function multiplication and composition operators -- Chapter 10. Ernst, T.: On generalized q-hyperbolic functions in the spirit of Kapteyn, with corresponding q-Lie group -- Chapter 11. Hounkonnou, M.N., Houndedji, G.D., Silvestrov, S.: Double constructions of biHom-Frobenius algebras -- Chapter 12. Kitouni, A., Silvestrov, S.: On Classification of (n+1)-dimensional n-Hom-Lie Algebras with nilpotent twisting maps -- Chapter 13. Kitouni, A., Silvestrov, S.: On the Classification of (n+1)-dimensional n-Hom-Lie Algebras for n=4,5,6 and nilpotent twisting map with 2-dimensional kernel -- Chapter 14. Langlois-Rémillard, A.: Deforming algebras with anti-involution via twisted associativity -- Chapter 15. Muhumuza, A. K., Mango, J.M., Kakuba, G., Lundengard, K., Malyarenko, A., Silvestrov, S.: The Wishart Distribution on Symmetric cones -- Chapter 16. Muhumuza, A.K., Silvestrov, S.: Symmetric Group Properties of Extreme Points of Vandermonde -- Chapter 17. Tumwesigye, A.B., Silvestrov, S.: Commutants in Crossed Products for Piecewise Constant Function Algebras Related to Multiresolution Analysis -- Chapter 18. Gomez-Olvera, M.D., Lopez-Ramos, J.A., Torrecillas, B.: Secure Group Communications using Twisted Group Rings -- Chapter 19. Prakasj, O., Islam, H., Verma, R.K.: Constacyclic and skew constacyclic codes over a finite commutative non-chain ring -- Chapter 20. Waweru, D.K., Maingi, D.M: Two-Sided Noncommutative Gröbner Basis on Quiver Algebras -- Chapter 21. Silvestrov, S., Rajkovic, P.M., Marinkovic, S.D.: Wallis type formula and a few versions of the number p in q-calculus -- Chapter 22. Silvestrov, S., Rajkovic, P.M.: On the q-Rodrigues formula - New Form for Fast Computing -- Chapter 23. Silvestrov, S., Zargeh, C.: HNN-extension of involutive multiplicative Hom-Lie algebras -- Chapter 24. Tanana, B., Cassy, B., Silvestrov, S.: About compact monothetic semirings and compact monothetic C-semirings.

Sommario/riassunto

The goal of the 2019 conference on Stochastic Processes and Algebraic Structures held in SPAS2019, Västerås, Sweden, from September 30th to October 2nd 2019 was to showcase the frontiers of research in several important topics of mathematics, mathematical statistics, and its applications. The conference has been organized along the following tracks: 1. Stochastic processes and modern statistical methods in theory and practice, 2. Engineering Mathematics, 3. Algebraic Structures and applications. This book highlights the latest advances in algebraic structures and applications focused on mathematical notions, methods, structures, concepts, problems, algorithms, and computational methods for the natural sciences, engineering, and modern technology. In particular, the book features mathematical methods and models from non-commutative and non-associative algebras and rings associated to generalizations of differential calculus, quantum deformations of algebras, Lie algebras, Lie superalgebras, color Lie algebras, Hom-algebras and their n-ary generalizations, semi-groups and group algebras, non-commutative and non-associative algebras and computational algebra interplay with q-special functions and q-analysis, topology, dynamical systems, representation theory, operator theory and functional analysis, applications of algebraic structures in coding theory, information analysis, geometry and probability theory. The book gathers selected, high-quality contributed chapters from several large research communities working

on modern algebraic structures and their applications. The chapters cover both theory and applications, and are illustrated with a wealth of ideas, theorems, notions, proofs, examples, open problems, and results on the interplay of algebraic structures with other parts of Mathematics. The applications help readers grasp the material, and encourage them to develop new mathematical methods andconcepts in their future research. Presenting new methods and results, reviews of cutting-edge research, open problems, and directions for future research, will serve as a source of inspiration for a broad range of researchers and students. .