



Coxeter Groups and Hopf Algebras

By Marcelo Aguiar, Swapneel Mahajan

American Mathematical Society. Paperback. Book Condition: new. BRAND NEW, Coxeter Groups and Hopf Algebras, Marcelo Aguiar, Swapneel Mahajan, An important idea in the work of G.-C. Rota is that certain combinatorial objects give rise to Hopf algebras that reflect the manner in which these objects compose and decompose. Recent work has seen the emergence of several interesting Hopf algebras of this kind, which connect diverse subjects such as combinatorics, algebra, geometry, and theoretical physics. This monograph presents a novel geometric approach using Coxeter complexes and the projection maps of Tits for constructing and studying many of these objects as well as new ones. The first three chapters introduce the necessary background ideas making this work accessible to advanced graduate students. The later chapters culminate in a unified and conceptual construction of several Hopf algebras based on combinatorial objects which emerge naturally from the geometric viewpoint. This work lays a foundation and provides new insights for further development of the subject.

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