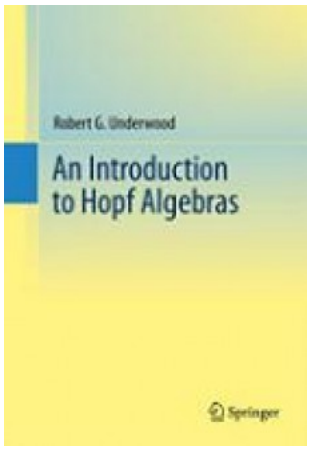

Título: An Introduction To Hopf Algebras

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Sinopsis

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The study of Hopf algebras spans many fields in mathematics including topology, algebraic geometry, algebraic number theory, Galois module theory, cohomology of groups, and formal groups and has wide-ranging connections to fields from theoretical physics to computer science. This text is unique in making this engaging subject accessible to advanced graduate and beginning graduate students and focuses on applications of Hopf algebras to algebraic number theory and Galois module theory, providing a smooth transition from modern algebra to Hopf algebras.

After providing an introduction to the spectrum of a ring and the Zariski topology, the text treats presheaves, sheaves, and representable group functors. In this way the student transitions smoothly from basic algebraic geometry to Hopf algebras. The importance of Hopf orders is underscored with applications to algebraic number theory, Galois module theory and the theory of formal groups. By the end of the book, readers will be familiar with established results in the field and ready to pose research questions of their own.

An exercise set is included in each of twelve chapters with questions ranging in difficulty. Open problems and research questions are presented in the last chapter. Prerequisites include an understanding of the material on groups, rings, and fields normally covered in a basic course in modern algebra.