

1. Record Nr.	UNINA9910483359803321
Autore	Schoutens Hans
Titolo	The use of ultraproducts in commutative algebra / / Hans Schoutens
Pubbl/distr/stampa	New York, : Springer, 2010
ISBN	9786613569707 9781280391781 1280391782 9783642133688 3642133681
Edizione	[1st ed. 2010.]
Descrizione fisica	1 online resource (X, 210 p.)
Collana	Lecture notes in mathematics, , 0075-8434 ; ; 1999
Classificazione	60G5160E0760J8045K0565N3028A7860H0560G5760J7526A33
Disciplina	512
Soggetti	Commutative algebra Ultraproducts
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references (p. 193-197) and index.
Nota di contenuto	Ultraproducts and 'o?' Theorem -- Flatness -- Uniform Bounds -- Tight Closure in Positive Characteristic -- Tight Closure in Characteristic Zero. Affine Case -- Tight Closure in Characteristic Zero. Local Case -- Cataproducts -- Protoproducts -- Asymptotic Homological Conjectures in Mixed Characteristic.
Sommario/riassunto	In spite of some recent applications of ultraproducts in algebra, they remain largely unknown to commutative algebraists, in part because they do not preserve basic properties such as Noetherianity. This work wants to make a strong case against these prejudices. More precisely, it studies ultraproducts of Noetherian local rings from a purely algebraic perspective, as well as how they can be used to transfer results between the positive and zero characteristics, to derive uniform bounds, to define tight closure in characteristic zero, and to prove asymptotic versions of homological conjectures in mixed characteristic. Some of these results are obtained using variants called chromatic products, which are often even Noetherian. This book, neither assuming nor using any logical formalism, is intended for algebraists and geometers, in the hope of popularizing ultraproducts and their applications in algebra.

