

1. Record Nr.	UNINA9910300259903321
Autore	Guardo Elena
Titolo	Arithmetically Cohen-Macaulay sets of points in $P^1 \times P^1$ // by Elena Guardo, Adam Van Tuyl
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-24166-4
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (136 p.)
Collana	SpringerBriefs in Mathematics, , 2191-8198
Disciplina	516.35
Soggetti	Commutative algebra Commutative rings Geometry, Algebraic Geometry, Projective Commutative Rings and Algebras Algebraic Geometry Projective Geometry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- The Biprojective Space $P^1 \times P^1$ -- Points in $P^1 \times P^1$ -- Classification of ACM Sets of Points in $P^1 \times P^1$ -- Homological Invariants -- Fat Points in $P^1 \times P^1$ -- Double Points and Their Resolution -- Applications -- References.
Sommario/riassunto	This brief presents a solution to the interpolation problem for arithmetically Cohen-Macaulay (ACM) sets of points in the multiprojective space $P^1 \times P^1$ . It collects the various current threads in the literature on this topic with the aim of providing a self-contained, unified introduction while also advancing some new ideas. The relevant constructions related to multiprojective spaces are reviewed first, followed by the basic properties of points in $P^1 \times P^1$ , the bigraded Hilbert function, and ACM sets of points. The authors then show how, using a combinatorial description of ACM points in $P^1 \times P^1$ , the bigraded Hilbert function can be computed and, as a result, solve the interpolation problem. In subsequent chapters, they consider fat points and double points in $P^1 \times P^1$ and demonstrate how to use

their results to answer questions and problems of interest in commutative algebra. Throughout the book, chapters end with a brief historical overview, citations of related results, and, where relevant, open questions that may inspire future research. Graduate students and researchers working in algebraic geometry and commutative algebra will find this book to be a valuable contribution to the literature.

---