

1. Record Nr.	UNISA996466551403316
Autore	Adelgren Nathan
Titolo	Advancing parametric optimization : on multiparametric linear complementarity problems with parameters in general locations // Nathan Adelgren
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] ©2021
ISBN	3-030-61821-8
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XII, 113 p. 8 illus., 7 illus. in color.)
Collana	SpringerBriefs in Optimization, , 2190-8354
Disciplina	016.5192
Soggetti	Mathematical optimization Geometry, Algebraic
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	1. Introduction -- 2. Background on mpLCP -- 3. Algebraic Properties of Invariancy Regions -- 4. Phase 2: Partitioning the Parameter Space -- 5. Phase 1: Determining an Initial Feasible Solution -- 6. Further Considerations -- 7. Assessment of Performance -- 8. Conclusion -- Appendix A. Tableaux for Example 2.1 -- Appendix B. Tableaux for Example 2.2 -- References.
Sommario/riassunto	The theory presented in this work merges many concepts from mathematical optimization and real algebraic geometry. When unknown or uncertain data in an optimization problem is replaced with parameters, one obtains a multi-parametric optimization problem whose optimal solution comes in the form of a function of the parameters. The theory and methodology presented in this work allows one to solve both Linear Programs and convex Quadratic Programs containing parameters in any location within the problem data as well as multi-objective optimization problems with any number of convex quadratic or linear objectives and linear constraints. Applications of these classes of problems are extremely widespread, ranging from business and economics to chemical and environmental engineering. Prior to this work, no solution procedure existed for these general classes of problems except for the recently proposed algorithms.

