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Autore	Arthanari Tirukkattuppalli Subramanyam
Titolo	Pedigree polytopes : new insights on computational complexity of combinatorial optimization problems / / Tirukkattuppalli Subramanyam Arthanari
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Chapter 1: Prologue -- Chapter 2: Notations, Definitions and Briefs -- Chapter 3: Motivation for Studying Pedigrees -- Chapter 4: Structure of the Pedigree Polytope -- Chapter 5: Membership Checking in Pedigree Polytopes -- Chapter 6: Computational Complexity of Membership Checking -- Chapter 7: Efficient Checking of Membership in Pedigree Polytope and its Implications -- Chapter 8: Epilogue.
Sommario/riassunto	This book defines and studies a combinatorial object called the pedigree and develops the theory for optimising a linear function over the convex hull of pedigrees (the Pedigree polytope). A strongly polynomial algorithm implementing the framework given in the book for checking membership in the pedigree polytope is a major contribution. This book challenges the popularly held belief in computer science that a problem included in the NP-complete class may not have a polynomial algorithm to solve. By showing STSP has a polynomial algorithm, this book settles the P vs NP question. This book has illustrative examples, figures, and easily accessible proofs for showing this unexpected result. This book introduces novel constructions and ideas previously not used in the literature. Another interesting feature of this book is it uses basic max-flow and linear multicommodity flow algorithms and concepts in these proofs establishing efficient membership checking for the pedigree polytope.

Chapters 3-7 can be adopted to give a course on Efficient Combinatorial Optimization. This book is the culmination of the author's research that started in 1982 through a presentation on a new formulation of STSP at the XIth International Symposium on Mathematical Programming at Bonn.
