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Autore	Stanczak Slawomir
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Nota di contenuto	Theory -- 1: On the Perron Root of Irreducible Matrices -- 2: On the Positive Solution to a Linear System with Nonnegative Coefficients -- Applications and Algorithms -- 3: Introduction -- 4: Network Model -- 5: Resource Allocation Problem in Communications Networks -- 6: Power Control Algorithm -- Appendices -- Appendix A: Some Concepts and Results from Matrix Analysis -- Appendix B: Some Concepts and Results from Convex Analysis.
Sommario/riassunto	The wireless industry is in the midst of a fundamental shift from providing voice-only services to offering customers an array of multimedia services, including a wide variety of audio, video and data communications capabilities. Future wireless networks will be integrated into every aspect of daily life, and therefore could affect our

life in a magnitude similar to that of the Internet and cellular phones. However, the emerging applications and directions require fundamental understanding on how to design and control wireless networks that lies far beyond what the currently existing theory can provide. We are deeply convinced that mathematics is the key technology to cope with central technical problems in the design of wireless networks since the complexity of the problem simply precludes the use of engineering common sense alone to identify good solutions. The main objective of this book is to provide tools for better understanding the fundamental tradeoffs and interdependencies in wireless networks, with the goal of designing resource allocation strategies that exploit these interdependencies to achieve significant performance gains. The book consists of three largely independent parts: theory, applications and appendices. The first part ends with some bibliographical comments and the second part starts with a short introduction to the problem of resource allocation in wireless networks. Below we briefly summarize the content of each part.

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