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	Nota di contenuto	ch. 1. Preliminaries. 1.1. Matrix theoretic background. 1.2. Positive semidefinite matrices. 1.3. Nonnegative matrices and M-matrices. 1.4. Schur complements. 1.5. Graphs. 1.6. Convex cones. 1.7. The PSD completion problem -- ch. 2. Complete positivity. 2.1. Definition and basic properties. 2.2. Cones of completely positive matrices. 2.3. Small matrices. 2.4. Complete positivity and the comparison matrix. 2.5. Completely positive graphs. 2.6. Completely positive matrices whose graphs are not completely positive. 2.7. Square factorizations. 2.8. Functions of completely positive matrices. 2.9. The CP completion problem -- ch. 3. CP rank. 3.1. Definition and basic results. 3.2. Completely positive matrices of a given rank. 3.3. Completely positive matrices of a given order. 3.4. When is the cp-rank equal to the rank?
	Sommario/riassunto	A real matrix is positive semidefinite if it can be decomposed as A=BB [symbol]. In some applications the matrix B has to be elementwise nonnegative. If such a matrix exists, A is called completely positive. The smallest number of columns of a nonnegative matrix B such that A=BB[symbol] is known as the cp-rank of A. This invaluable book focuses on necessary conditions and sufficient conditions for complete positivity, as well as bounds for the cp-rank. The methods are combinatorial, geometric and algebraic. The required background on

nonnegative matrices, cones, graphs and Schur complements is outlined.