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Sommario/riassunto	Winner of the 2016 EMS Monograph Award! Complex Monge-Ampere equations have been one of the most powerful tools in Kahler geometry since Aubin and Yau's classical works, culminating in Yau's solution to the Calabi conjecture. A notable application is the construction of Kahler-Einstein metrics on some compact Kahler manifolds. In recent years degenerate complex Monge-Ampere equations have been intensively studied, requiring more advanced tools. The main goal of this book is to give a self-contained presentation of the recent developments of pluripotential theory on compact Kahler manifolds and its application to Kahler-Einstein metrics on mildly singular varieties. After reviewing basic properties of plurisubharmonic functions, Bedford-Taylor's local theory of complex Monge-Ampere measures is developed. In order to solve degenerate complex Monge-Ampere equations on compact Kahler manifolds, fine properties of quasi-plurisubharmonic functions are explored, classes of finite energies defined and various maximum principles established. After proving Yau's celebrated theorem as well as its recent generalizations, the results are then used to solve the (singular) Calabi conjecture and to construct (singular) Kahler-Einstein metrics on some varieties with mild singularities. The book is accessible to advanced students and researchers of complex analysis and differential geometry.

