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Sommario/riassunto

Inequalities from Complex Analysis is a careful, friendly exposition of inequalities and positivity conditions for various mathematical objects arising in complex analysis. The author begins by defining the complex number field, and then discusses enough mathematical analysis to reach recently published research on positivity conditions for functions of several complex variables. The development culminates in complete proofs of a stabilization theorem relating two natural positivity conditions for real-valued polynomials of several complex variables. The reader will also encounter the Bergman kernel function, Fourier series, Hermitian linear algebra, the spectral theorem for compact Hermitian operators, plurisubharmonic functions, and some delightful inequalities. Numerous examples, exercises, and discussions of geometric reasoning appear along the way. Undergraduate mathematics majors who have seen elementary real analysis can easily read the first five chapters of this book, and second year graduate students in mathematics can read the entire text. Some physicists and engineers may also find the topics and discussions useful. The inequalities and positivity conditions herein form the foundation for a small but beautiful part of complex analysis. John P. D'Angelo was the 1999 winner of the Bergman Prize; he was cited for several important contributions to complex analysis, including his work on degenerate Levi forms and points of finite type, as well as work, some joint with David Catlin, on positivity conditions in complex analysis