

Special Session on Total Positivity

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Abstract

The concept of total positivity is rooted in classical mathematics where it can be traced back to works of Schoenberg on variation diminishing properties and of Gantmacher and Krein on small oscillations of mechanical systems. Since then the class of totally positive matrices and operators proved to be relevant in such a wide range of applications that over the years many distinct approaches to total positivity, amenable to a particular notion, have arisen and advocated by many prominent mathematicians. This area is, however, not just a historically significant subject in mathematics, but the one that continues to produce important advances and spawn worth-wile applications. This is reflected by the topics which will be covered by the speakers of the Special Session, viz. the study of classes of matrices related to total positivity, accurate computations based on bidiagonalization, inverse eigenvalue problems, log-concavity, and the location of the roots of polynomials.

Keywords

Total positivity, bidiagonalization, inverse eigenvalue problems, location of the roots of polynomials, log-concavity