The Inertia in the Spectral Structure of Quadratic Self-Adjoint Matrix Polynomials

Valeriu Prepeliță (Univ. Politehnica Bucureşti)

Abstract

A method to determine the inertia for a class of quadratic self-adjoint matrix polynomials is provided,which uses the concepts and thetechniques of the spectral theory of self-adjoint matrix polynomials. Two formulas for the signature and the rank of these matrices are derived.These results have applications in various domains such as systems andcontrol theory. An example illustrates the effectiveness of the proposed methods for self-adjoint matrix polynomials of order two.