Nonlinear complex symmetric Jacobi–Davidson

K. Schreiber

Starting with the nonlinear Jacobi–Davidson algorithm we derive a version which uses the special structure of complex symmetric nonlinear eigenvalue problems.

We will show why this improves convergence on the basis of nonlinear Rayleigh functionals. The complex symmetric Rayleigh functional is stationary in contrast to the standard functional, which is the one-dimensional equivalent to the Rayleigh-Ritz step eigensolution in the nonlinear Jacobi–Davidson algorithm.

Numerical examples will be provided.