Filtered subspace iteration coupled with Rayleigh-Ritz eigenvalue extraction is a recently reviewed method in the form of the FEAST algorithm. The core of the algorithm is a numerical resolvent calculus based on the contour quadratures coupled with a perturbation analysis of the resolvent evaluation motivated by the results in Numerical Linear Algebra. We prove convergence rate which depends on the properties of the filter, even in the presence of (singular) perturbations. Perturbations which we consider can originate both from the projection/(domain truncation) of infinite dimensional operators (necessary to evaluate resolvents) or from the uncertainty in the parameters of the underlying problem.

The talk is based on joint work with J. Ovall, B. Parker and Jay Gopalakrishnan.