

Numerical Analysis of Matrix Functions

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I have spent some time recently studying [matrix functions](http://en.wikipedia.org/wiki/Matrix_function), both from theoretical and computational perspective. There is a [nice book by Nick J. Higham on functions of matrices](http://www.amazon.com/Functions-Matrices-Computation-Applied-Mathematics/dp/0898716462), which I highly recommend to interested reader and which provides a thorough overview of current theoretical results on matrix functions and several efficient numerical methods for computing them. Another well written text is by [Rajendra Bhatia on matrix analysis \(graduate texts in mathematics\)](http://www.amazon.com/books/dp/0387948465), which includes topics such as the theory of majorization, variational principles for eigenvalues, operator monotone and convex functions, matrix inequalities and perturbation of matrix functions. Bhatia's book is more functional analytic in spirit, whereas Higham's book focuses more on numerical linear algebra.

Below you will find a report that I produced and which contains a few interesting (some are elementary) proofs and implementations of algorithms. Interested reader should check the literature above to be able to follow the text.

[Report \(in English\)](../reports/Marinka-Zitnik-IPNLA.pdf).