Extending accurate computations for totally positive matrices

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Abstract

It is known that for totally positive matrices, their bidiagonal decomposition is an adequate parametrization in order to carry out accurate computations. Given these parameters, it is possible to perform subtraction- free algorithms to compute the inverse matrix, eigenvalues and singular values (see [4]). In this talk we recover the method presented in [2] to extend these algorithms to ε-SBD matrices, a class of matrices that contains not only totally positive matrices but also their inverses (see also [1]). We also extend the results of Koev (cf. [4]) to new classes of matrices, preserving the accuracy independently of its conditioning (see [3]). Joint work with Juan Manuel Peña.

References

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