Special Session on Interval Matrices

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Abstract

An interval matrix is defined as a set of matrices lying entrywise between two given matrices. An interval matrix is a fundamental notion in interval computation, which is focused on rigorous computation with real or interval data. The key property of interval computation is the "enclosing property", guaranteeing that all possible realizations of interval data and all roundoff errors are taken into account. Due to this property, interval computation is an important tool in verification in numerical analysis, global optimization, constraint programming and many other areas. Therefore, handling interval matrices is a very frequent problem in interval computation since one often needs to verify some matrix property (nonsingularity etc.), approximate its eigenvalues, or solve an interval linear system of equations.

This special session will be devoted to investigation of various properties of interval matrices, including theoretical characterization, developing efficient algorithms, classification in the computational complexity sense, as well as solving interval linear systems of equations and the related problems.

References

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[3] Rohn, J. (2012). *A handbook of results on interval linear problems. Technical Report 1163.* Institute of Computer Science, Academy of Sciences of the Czech Republic, Prague.
`http://www.nsc.ru/interval/Library/InteBooks/!handbook.pdf`