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Stability of linear equations – algebraic approach.

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Summary: This article could be of interest to teachers of applied mathematics as well as to people who are interested in applications of linear algebra. We give a comprehensive study of linear systems from an application point of view. Specifically, we give an overview of linear systems and problems that can occur with the computed solution when the coefficient matrix is obtained via experimentation. By giving the initial tolerance for the solution, the estimate of the admissible tolerance for the error matrix, and the error of the solution relative to the norm of the computed solution can be determined. We use standard properties of Banach algebra on matrices equipped with the spectral norm.

Classification: N35 H65

Keywords: linear system; perturbed linear problems; stability; condition number

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