

Metrology & Hallmark

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Generalized least squares method

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[covariance matrix](#) [least square method](#) [linear regression](#) [uncertainty](#)

Abstract

The paper presents a generalized approach for the well-known least squares method used in metrological practice. In order to solve the complex problem of minimizing the objective function to obtain the maximum value of the likelihood function, the original way of determining this function in the form of a unary relationship calculated numerically was presented. The article presents borderline cases with analytical solutions. The computational example shows the full procedure of numerical adjustment of a straight line to a given set of measurement points with given uncertainties and correlation coefficients forming the covariance matrix.

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