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The Importance of Measurement Data Spacing

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T. M. Seixas *and* M. A. Salgueiro da Silva

View Affiliations

ABSTRACT

When conducting experiments involving the measurement of physically related quantities, choosing an appropriate spacing for the experimental independent variable is a crucial procedure whose consequences may go beyond data graphical visualization. This is particularly true if the measured quantities are nonlinearly related and experimental errors are nonuniform. In this work, we show that measurement procedures should provide a higher density of data points in the range where experimental errors are larger, to more effectively average out random errors and thus mitigate accuracy errors in parameter determination. Knowing the effective experimental independent variable helps in defining an adequate data spacing.