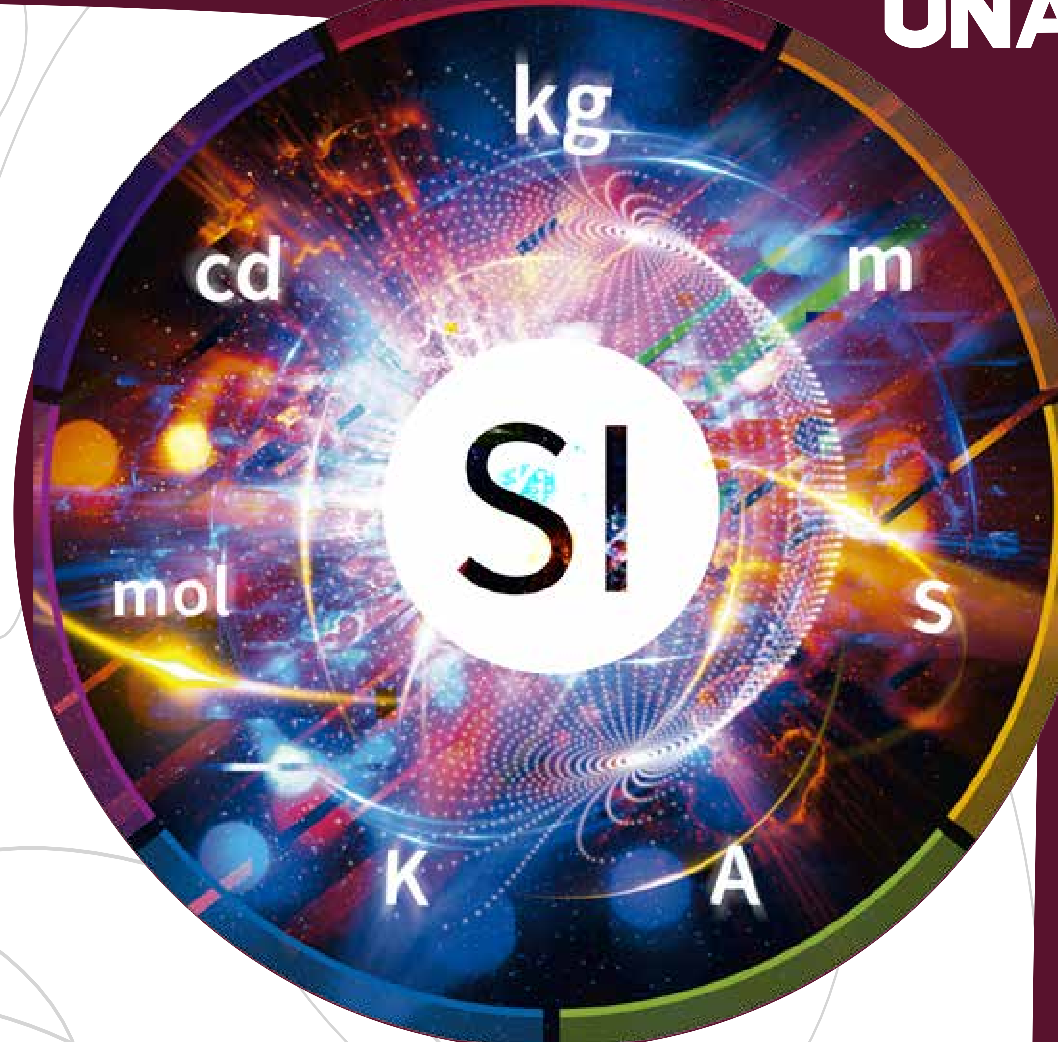
SEMINARIO ESPECIAL PARA CELEBRAR EL DÍA MUNDIAL DE LA METROLOGÍA

SEMINARIO DEL DEPARTAMENTO DE PROBABILIDAD Y ESTADÍSTICA

20 DE MAYO, DÍA MUNDIAL DE LA METROLOGÍA

IIMAS UNAM



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His current interests include:
Mathematical modelling, especially applied to measurement science.
Generic approaches for measurement uncertainty evaluation.
Statistical evaluation of interlaboratory comparison data.
Numerical analysis, especially related to mathematical models in physics, chemistry and biology.
Preparation of International Standards and Guides to support ISO, JCGM, and the Consultative Committees of the CIPM.

INFORMATIVE BAYESIAN "TYPE A" UNCERTAINTY EVALUATION

A criticism levelled at the Guide to the expression of uncertainty in measurement (GUM) is that it is based on a mixture of frequentist and Bayesian thinking. In particular, the GUM's Type A (statistical) uncertainty evaluations are frequentist, whereas the Type B evaluations, using state-of-knowledge distributions, are Bayesian. In contrast, making the GUM fully Bayesian implies, among other things, that a conventional objective Bayesian approach to Type A uncertainty evaluation for a number of observations leads to the impractical consequence that must be at least equal to 4, thus presenting a difficulty for many metrologists.

This talk presents a Bayesian analysis of Type A uncertainty evaluation that applies for all , as in the frequentist analysis in the current GUM. The analysis is based on assuming that the observations are drawn from a normal distribution (as in the conventional objective Bayesian analysis), but uses an informative prior based on lower and upper bounds for the standard deviation of the sampling distribution for the quantity under consideration.

The main outcome of the analysis is a closed-form mathematical expression for the factor by which the standard deviation of the mean observation should be multiplied to calculate the required standard uncertainty. Metrological examples are used to illustrate the approach, which is straightforward to apply using a formula or look-up table.

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18 de mayo de 2018
12:00 horas
Auditorio del IIMAS
Circuito Escolar, Ciudad Universitaria

http://www.dpye.iimas.unam.mx/txt/seminarios.html