**Rules for abstracts of the UM-2021 conference reports**

Abstracts are accepted in the amount of 1 or 2 full pages of A4 text, in the MS Word editor **without figures**.

Abstracts are drawn up in accordance with the following requirements:

- font Times New Roman, size 14 pt; margins: left, right, top and bottom – 2 cm; line spacing – single;

- first line – the title of the report in capital letters, center alignment, bold font, size 14 pt. One blank line after the title;

- second line – the name and initials of the authors of the report, center alignment, bold font, size 14 pt;

- third line – city and country, center alignment, non-bold font, italic type.

The main text – after one blank line, justified; indention – 1 cm;

References (font Times New Roman, size 14 pt) – one blank line after the main text.

An example of abstract's drawing-up is given on the next page.

# PROBLEMS OF THE BAYESIAN APPROACH IMPLEMENTATION TO MEASUREMENT UNCERTAINTY EVALUATION

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More than 20 years have passed since the creation of the Guide to the Expression of Uncertainty in Measurement (GUM) [1]. During this time, many of its shortcomings were identified, which led to the need to develop an approach based on the numerical implementation of the propagation of distributions [2].

The expression for expanded uncertainty $U$ in GUM has the form:

$$U = ku(y), \qquad (1)$$

where $k$ is the coverage factor; $u(y)$ is standard uncertainty of the measurand.

A comparison of the expanded uncertainty estimates and those obtained using the approaches described in [1] and [2] shows their numerical difference.

A comparison of the parameter estimates presented in JCGM 100:2008 and JCGM 100:201X (CD) is demonstrated in Table 1 [3].

Table 1

| Parameter | JCGM 100:2008 | JCGM 100:201X (CD) |
|---|---|---|
| $u_A(x_j)$ | $s_j\big/\sqrt{n_j}$ | $\sqrt{(n_j-1)\big/(n_j-3)}\cdot s_j\big/\sqrt{n_j}$ |
| $u_B(x_j)$ | Based on a priori information on the PDF of input quantities | |
| $u_j(y)$ | $c_j u(x_j), \quad c_j = \partial y\big/\partial x_j$ | |
| $U(y)$ | $t_{0,95}(\nu_{eff})u(y),$ $\nu_{eff} = \dfrac{u^4(y)}{\sum\limits_{j=1}^{m}\dfrac{u_j^4(y)}{\nu_j}}$ | $ku(y),$ $k=4,47$ (for unknown PDF); $k=2,98$ (for symmetric unimodal PDF) |

## References
1. Guide to the Expression of Uncertainty in Measurement. Geneva: ISO, 1993. 101 p.
2. JCGM 101:2008. Evaluation of measurement data − Supplement 1 to the "Guide to the expression of uncertainty in measurement" − Propagation of distributions using a Monte Carlo method. JCGM, 2008. 88 p.
3. Bich et al. Revision of the "Guide to the Expression of Uncertainty in Measurement". *Metrologia*. 2012, Vol. 49. pp. 702–705.