M$_\text{athematical}$ M$^\text{odeling}$ C$_\text{omputing}$

Long title: Template and instructions to the authors

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These instructions describe how to prepare an article using LaTeX 2$_\varepsilon$ and `MMC.sty` for publishing in "Mathematical Modeling and Computing" journal. The prepared article should be sent to the e-mail: `mmc@lpnu.ua`. The abstract should be written as a single paragraph not exceeding 150 words.

1. The general structure of the file

Original text of the article in the LaTeX 2$_\varepsilon$ format can be typed in any text editor.

The text should begin with the lines

```
\documentclass[11pt]{article}
\usepackage{MMC}
\begin{document}
```

Command `\usepackage` connects style file `MMC.sty`, which must be located in the same directory as the article.

After that the title, list of authors, their affilation, links to grants (if required), e-mail of corresponding author, annotation, keywords, MSC and UDC number(s) are formed:

```
\title
  [Short title: Template and instructions]
  {Long title: Template and instructions
             to the authors}
\author
  [Kostrobij\,P.\,P.]
  { Kostrobij\,P.\,P.,
    Tokarchuk\,M.\,V.,
    Markovych\,B.\,M.}
  [Kostrobij\,P.\,P.$^1$,
   Tokarchuk\,M.\,V.$^{1,2}$,
   Markovych\,B.\,M.$^1$]
\thanks{This work was supported by grant \ldots}
\email{e-mail\_m@mail.org}
\organization
  {\address{1}Lviv Polytechnic
             National University\par
```

```
        12 S. Bandera str., 79013, Lviv, Ukraine\par
    \address{2}Institute for Condensed
               Matter Physics\par
               of the National Academy of
               Sciences of Ukraine\par
    1 Svientsitskii str., 79011 Lviv, Ukraine}
    \received{1 April 2014}
  \abstract
   {These instructions describe how to prepare an article
    using \LaTeXe\ and \texttt{MMC.sty} for publishing in
    ''Mathematical Modeling and Computing'' journal.
    The abstract should be written as a single
   paragraph not exceeding 150 words.
  \keywords{Up to six keywords}%
  \MSC{Up to six 2000 MSC numbers}
  \udk{Up to six UDC numbers}}
  \maketitle
```

Analogously the same information is formed in Ukrainian:

```
\titleUkr{Назва статті українською мовою}
\authorUkr[Костробій\,П.\,П. та ін.]
    {Костробій\,П.\,П.$^1$,
     Токарчук\,М.\,В.$^{1,2}$,
     Маркович\,Б.\,М.$^1$}
\organizationUkr
    {\address{1}Національний університет
            <<Львівська політехніка>>\par
             вул. С. Бандери, 12, 79013, Львів, Україна
    \address{2}Інститут фізики конденсованих
                систем НАН України\par
     вул. Свєнціцького, 1, 79011, Львів, Україна}
\abstractUkr
    {Ці поради описують, як підготувати статтю
     для публікації в журналі
     <<Mathematical Modeling and Computing>>
     за допомогою \LaTeXe\ з використанням стилю
     \texttt{MMC.sty}.
     Анотація повинна бути оформлена
     у вигляді одного абзацу розміром
     не більше 150 слів.
  \keywordsUkr{до шести ключових слів}%
  \MSC{до шести номерів 2000 MSC}
  \udkUkr{до шести номерів УДК}}
```

The list of literature is

```
\begin{thebibliography}{1}
\bibitem{Mittelbach}
    \BibAuthor{Mittelbach\,F., Goossens\,M.,
        Braams\,J., Carlisle\,D., Rowley\,C.}
    \BibTitle{The \LaTeX\ Companion (Tools and
          Techniques for Computer Typesetting).}
    Addison-Wesley Professional;
          2nd edition (2004).
\bibitem{Lamport}
    \BibAuthor{Lamport\,L.}
    \BibTitle{\LaTeX: A Document Preparation
```

```
                                System.}
      Addison-Wesley Professional;
                        2nd edition (1994).
\bibitem{Kopka}
      \BibAuthor{Kopka\,H., Daly\,P.\,W.}
      \BibTitle{Guide to \LaTeX.}
      Addison-Wesley Professional;
                          4th edition (2003).
\bibitem{Goossens}
      \BibAuthor{Goossens\,M., Rahtz\,S.}
      \BibTitle{The \LaTeX\ Graphics Companion:
       Illustrating Documents with TeX
       and Postscript.}
      Addison-Wesley Professional (1997).
 \bibitem{Oetiker}
      \BibUrl{http://ctan.org/tex-archive/info/lshort/}
\bibitem{Burnside}
      \BibAuthor{Burnside\,W.}
      \BibTitle{A rapidly convergent series
                    for $\log N!$}
         Messenger Math. \textbf{46},
                    157--159 (1917).
\end{thebibliography}
```

The text concludes by commands `\maketitleUkr` and `\end{document}`

2. Standard tools of LaTeX

There is no particular restriction on the use of standard LaTeX tools [1, 2, 3, 4, 5]. You can insert in the article formulas, tables, lists, images, footnotes, etc. Link to the formula, literature, etc. should be carried out by the labels.

List of standard packages connected in `MMC.sty`: `algorithm`, `algorithmic`, `amssymb`, `amsmath`, `array`, `babel`, `balance`, `color`, `epic`, `euscript`, `graphicx`, `ifthen`, `inputenc`, `mathrsfs`, `pb-diagram`, `theorem`, `upgreek`, `url`, `xy`. These packages do not require you causing command `\usepackage`. Better to do only those packages.

Formula within the text, even very short, needed to be surrounded by dollar signs `$`:

`value $-3.14$`	value -3.14 — correctly
`value -3.14`	value -3.14 — wrong
`variable $x$`	variable x — correctly
`variable x`	variable x — wrong

Formula in line with no number surrounded by brackets `\[` and `\]`. Formula in line with number surround by commands `\begin{equation}` и `\end{equation}`.

Tables are created by environment `tabular` and executed as a floating environment using `table` (see Tabl. 1).

Table 1. This is a table template

Product	1	2	3	4
Price	124.-	136.-	85.-	156.-
Years	1	2	-	3
Rating	89%	84%	51%	
Recommended	yes	yes	no	no

Illustrations should be prepared in the format `EPS`. Pictures are inserted in the text as a floating environment using `figure` (see Fig. 1).

Fig. 1. Donald Knuth, creator of TEX.

References are made by environment `thebibliography`. Each entry begins bibliography command `\bibitem{name}`. Label *name* allows you to refer to this record by typing `\cite{name}`. In the references are allowed to specify multiple labels separated by commas: `\cite{name₁,name₂}`. New command `\citenb` provides a link without the square brackets that allows intervals; for example, [1–5] was obtained as follows: `[\citenb{Mittelbach}--\citenb{Oetiker}]`.

Algorithms are formed in the style of pseudo code using a floating environment `Algorithm`. Inside environment `Algorithm` standard keywords `\IF`, `\FOR`, `\WHILE`, etc are using. Steps of the algorithm are automatically numbered, and may be cited, See important step 5 algorithm 1.

Algorithm 1 All commands are showed

Require: x, y;
Ensure: $z = F(x, y)$;
 1: initialization: $b := a$;
 2: **for** $i = 1, \ldots, n$
 3:    **for all** $w \in W$ such that $w \geqslant 0$
 4:       **repeat**
 5:          important step: calculation of the vector u_i;
 6:       **until** $\|u_i - u_{i-1}\| > \varepsilon$;
 7: **if** $a > 0$ **then**
 8:    **while** $W \neq \varnothing$
 9:       $W := W - \{a\}$;
10: **else if** $a = 0$ **then**
11:    **loop**   // *infinite loop*
12:       under certain conditions **exit**;
13: **else**   // *at* $a < 0$
14:    $a := 1$;

List of environments: `Def` or `Definition`, `Theorem`, `Lemma`, `State`, `Corollary`, `Axiom`, `Problem`, `Example`, `Remark`, `Hypothesis`.

Using of these environments:

Theorem 1. *It is statement of the theorem.*

Remark 1. It is remark to theorem 1.

Complicated formulas require use environment `align`, `alignat`, `gather`, `multline` или `split`.

Example 1.

$$H = H_0 + \sum_{j=1}^{N} V(\mathbf{r}_j) + \frac{1}{2} \int_V d\mathbf{R}_1 \int_V d\mathbf{R}_2 \frac{\varrho_1(\mathbf{R}_1)\varrho_1(\mathbf{R}_2) - (eN/V)^2}{|\mathbf{R}_1 - \mathbf{R}_2|}$$
$$+ \frac{1}{2} \int_V d\mathbf{R}_1 \int_V d\mathbf{R}_2 \frac{\varrho(\mathbf{R}_1)\varrho(\mathbf{R}_2) - (eN/V)^2}{|\mathbf{R}_1 - \mathbf{R}_2|}, \quad (1)$$

Example 2.

$$R'_N(F) = \frac{1}{N} \sum_{i=1}^{N} \Big(P(+1 \,|\, x_i) C\big(+1, F(x_i)\big) +$$
$$+ P(-1 \,|\, x_i) C\big(-1, F(x_i)\big) \Big).$$

[1] Mittelbach F., Goossens M., Braams J., Carlisle D., Rowley C. The LaTeX Companion (Tools and Techniques for Computer Typesetting). Addison-Wesley Professional; 2nd edition (2004).

[2] Lamport L. LaTeX: A Document Preparation System. Addison-Wesley Professional; 2nd edition (1994).

[3] Kopka H., Daly P. W. Guide to LaTeX. Addison-Wesley Professional; 4th edition (2003).

[4] Goossens M., Rahtz S. The LaTeX Graphics Companion: Illustrating Documents with TeX and Postscript. Addison-Wesley Professional (1997).

[5] http://ctan.org/tex-archive/info/lshort/

[6] Burnside W. A rapidly convergent series for log N! Messenger Math. **46**, 157 (1917).

[7] Murray F. J. Formulas for factorial N. Math. Comp. **39**, 656 (1982).

Назва статті українською мовою

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Ці поради описують, як підготувати статтю для публікації в журналі «Математичне моделювання та інформаційні технології» за допомогою LaTeX 2_ε з використанням стилю `MMC.sty`. Підготовлену статтю потрібно надіслати на електронну адресу: `mmc@lpnu.ua`. Анотація повинна бути оформлена у вигляді одного абзацу розміром не більше 150 слів.

Ключові слова: *до шести ключових слів*
2000 MSC: до шести номерів 2000 MSC
УДК: до шести номерів УДК