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Note di Matematica instructions for authors

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Abstract. This article is a set of instructions for users of `notemat.cls`. Author could also look at the source file `.tex` as the main example of usage of the style.

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MSC 2000 classification: primary 00X00, secondary 00Y00

Introduction

This article contains guidelines to the use of `notemat.cls`, the style file of the journal *Note di Matematica*. The article is intended primarily for authors of papers to be published in *Note di Matematica*, even if `notemat.cls` can also be used to write papers to submit to *Note di Matematica*.

The style file `notemat.cls` will only work in LaTeX 2_ε (hence *not* in LaTeX version 2.09). Any post-1995 TeX distribution (program and files) should have LaTeX 2_ε as the default LaTeX system.

This article is *not* a guide to LaTeX 2_ε. If authors wish to learn to use LaTeX 2_ε, standard references are the book [3] as a general guide and [1] as a guide to the official extensions to LaTeX 2_ε (*i.e.*, styles and packages). A basic knowledge of TeX is not required; in any case, the main reference is [2]. There are also a lot of free guides and manuals in Internet: the primary source for on-line documentation is CTAN, the official TeX(and LaTeX 2_ε) archive at `http://www.ctan.org`.

[i]This work is partially supported by...
[ii]This work is partially supported by...

1 Preamble

The preamble is the first part of a LaTeX 2_ε file, and is the place for style declarations and macro definitions. To use the style of *Note di Matematica*, authors must write the following lines at the beginning of their `.tex` file:

```
\documentclass{notemat}
\usepackage{nmmacro}
```

The first line loads the style file `notemat.cls`, the second loads the file `nmmacro.sty` containing some definitions of theorem-like environments.

Authors may wish to use more styles in their papers. In principle, any of the LaTeX 2_ε styles contained in CTAN, the official TeX archive, can be used. In particular, if the paper contains many displayed equations or many mathematical symbols, the AMS style `amsmath.sty` and symbols `amssymb.sty` are recommended. They must be loaded *before* `nmmacro.sty`, in this way:

```
\documentclass{notemat}
\usepackage{amsmath}
\usepackage{amssymb}
\usepackage{nmmacro}
```

These styles are available at CTAN or at the site of the American Mathematical Society, `http://www.ams.org`. Post-1995 TeX distributions (programs and files) include these packages and corresponding documentation.

Authors should limit the number of their own macros (definitions). Most authors provide a lot of macros that they do not even use. The excess of macros is bad because they could conflict with some other author's macros in the process of joining the papers to produce the journal. For this reason, it is a good idea to use relatively long names for macros (at least 3 characters, definitely *not* 1 character).

Any article must begin and end as follow:

```
\begin{document}
\begin{article}
.........
\end{article}
\end{document}
```

The `article` environment affects only some style parameters and does not interfere with author's commands and text.

2 Title

The title and relevant information about the authors and the paper is contained in the environment `opening`, which is to be put just after the command `\begin{article}`:

```
\begin{article}
\begin{opening}
\title{...}
\author{...\thanks{...}}
\institute{...\email{...}}
\runningauthor{...}\runningtitle{...}
\begin{abstract}...\end{abstract}
\keywords{...}\classification{...}
\end{opening}
```

Any of the above fields is mandatory, with the exception of `\thanks`. Besides the obvious `\author`, `\institute`, `\email` and `abstract`,

- `\title` should be capitalized as a normal text sentence, *i.e.*, the use of uppercase letters at the beginning of each word is discouraged;
- `\thanks` should contain acknowledgements of grants;
- `\runningauthor` and `\runningtitle` are, respectively, the left header and the right header, and must contain a short version of the authors' names and a short version of the title of the article (both should not exceed 60 characters including spaces);
- `\keywords` must contain some keywords about the article;
- `\classification` must contain MSC 2000 classification, at least a primary subject and zero or more secondary subjects. The MSC 2000 classification can be found at `http://www.ams.org`.

Note that the standard LaTeX 2$_\varepsilon$ instructions for titles are not suitable for *Note di Matematica*.

3 Writing text and math

There are few important things to remember when writing a text to give it the best appearance within the LaTeX 2$_\varepsilon$ system.

(1) **Text.**

a. *Periods and spaces. Note di Matematica* is printed with the instruction `\frenchspacing`. This causes extra spaces after the end of a sentence (with respect to the normal interword space) to be suppressed, according to European common typesetting rules.

b. *Font switching commands.* LaTeX 2$_\varepsilon$ uses a completely new set of instruction for switching font with respect to the old LaTeX2.09. Authors should use such new instructions instead of the old ones. For example, the instruction {`\it...`} should be replaced by `\textit{...}` or by `\emph{...}`, when italics is used to emphasize text.

c. *New paragraphs.* A new paragraph always begins with an indentation. This means that authors should not use `\\` to have a new paragraph; they should use an empty line instead.

d. *Space between paragraphs.* Sometimes it is useful to leave an extra space between distinct paragraphs. Authors should use the command `\medskip` for this, and not an arbitrarily defined command, in order to guarantee the uniformity in the text.

e. *Overfull and underfull.* Try to keep minimal the number of overfull `\hbox` and underfull `\vbox`. Normally, bad underfull are generated by figures or by big displayed formulae. Try placing figures in the best possible way and to break big displays. Instead, overfull `\hbox` are given by bad line breakings. Note di Matematica has a tolerance of 2pt in this sense; try to be under this limit, eventually by adjusting the sentences.

(2) **Math.** The following rules are taken from [2, Chap. 18].

a. *Punctuation.* It must be put within a displayed formula and just outside an in-line formula. Accordingly, in a list of formulas in text, use `$a$, $b$` instead of `$a, b$`.

b. *Operators.* Operators in math must be written in roman font, not in math font. To achieve this, use the line

```
\DeclareMathOperator{\operator}{operator}
```

in the preamble, then use `\operator` to obtain the word 'operator' with the right spacing in the formula. Note that most common operators like `\sin` are already defined. Never use `sin`! The result would be very bad.

c. *Spacing.* Use the instructions `\! \, \> \; \quad \qquad` to give proper spacing between objects of your formulae.

d. *Ellipsis.* Ellipsis are used in various ways. Authors should use the command `\ldots` to achieve an ellipsis like $x_1, \ldots, x_n$, and the command `\cdots` to achieve the following ellipsis: $x_1 + \cdots + x_n$. The difference is in the positions of the symbols that precede and follow the ellipsis.

e. *Sets.* Sets are written in the following way: `${\,a\mid a\in A\,}$`, producing $\{\, a \mid a \in A \,\}$.

f. *Delimiters.* In displayed formulae the commands `\left(` and `\right)` must be used to achieve the right size in order to enclose the formula in parentheses. The same thing must be done also for other vertical delimiters like braces, etc..

4 Theorems

In order to guarantee 'homogeneity' of the articles in the journal, the style file `nmmacro.sty` contains definitions of some of the most used theorem-like environments of mathematical papers. Namely, we provide the environments `Lemma, Proposition, Theorem, Corollary, Conjecture, Definition, Remark, Note, Example`. Their use is very simple, here is an example:

```
\begin{Theorem}
.............
\end{Theorem}
```

Just recall to *use the uppercase letter* in the environment's name. If there is the need to give a name to the theorem, the following line

```
\begin{Theorem}[Poincar\'e's lemma]
.............
```

will produce **Theorem n. (Poincaré's lemma)**. These environments have been created with the AMS style `amsthm.sty`, hence *they require it*. Post-1995 TEXdistributions (programs and files) should have it. In any case, it is available at CTAN or AMS sites.

5 Cross-references

A very useful construct in LATEX 2_ε is given by `\label{...}` and `\ref{...}` instructions (...stands for an arbitrary alphanumeric string). If you need to make reference to a numbered environment (like a theorem, a section, etc.) then you may put a `\label{...}` command in the numbered environment and

a `\ref{...}` command where the reference is needed. The last command will print the number of the corresponding `\label{...}`.

Authors are strongly encouraged to make use of this construct instead of using the environments' number. In fact, this number can be changed when assembling the issue of the journal, but the use of `\label{...}` and `\ref{...}` avoids possible problems.

Use descriptive labels, like `\label{auth1auth2:theor1}`, in order to avoid confusion with labels of other authors when assembling papers.

6 Figures

The preferred format for figures is Encapsulated PostScript™ (`.eps`). Any other format will be converted to `.eps`, and the publisher does not guarantee about the result. You should choose 0.1mm of width for thin lines and 0.3mm of width for thick lines in your drawing program.

In order to load `.eps` figures in your output file (`.dvi`) you must load a graphic package for LaTeX 2_ε. There are many of these packages. A good choice is `graphicx`. This package is described in [1], and there is a lot of freely available documentation in Internet, see `http://www.ctan.org`. It is loaded by putting at the beginning of the input file the following line just after the *Note di Matematica* styles:

```
..........
\usepackage{graphicx}
..........
```

In this case, the syntax for the inclusion of the figure `foo.eps` should be

```
\begin{figure}[options]
\begin{center}
  \includegraphics[width=...cm,height=...cm]{foo.eps}\\
  \caption{\label{myfig} Figure}
\end{center}
\end{figure}
```

Here, `[options]` are options for figure positioning, `width` and `height` are the dimensions of the figure, and `\caption` produces the caption of the figure, with a suitable label for cross-references.

Acknowledgements. Acknowledgements to persons or institutions should be put in a separate environment before the beginning of the bibliography, with the following syntax:

```
\begin{acknowledgements}
..........
\end{acknowledgements}
```

7 Bibliography

There are two styles for references. One is for papers and similar, and the other is for books and similar. In the first case [1], the title of the paper is in italics, in the second case [2] the title is in normal font.

References

[1] E. De Giorgi: *Sulla differenziabilità e l'analiticità delle estremali degli integrali multipli regolari*, Mem. Accad. Sci. Torino, Cl. Sci. Fis. Mat. Nat., **3**, n. 3, 25–43.

[2] E. De Giorgi, F. Colombini, L. C. Piccinini: Frontiere orientate di misura minima e questioni collegate, Quaderni Sc. Norm. Sup. Pisa, Ed. Tecn. Scient., Pisa 1972.

The above bibliography is produced by the following commands

```
\begin{thebibliography}{99}

\bibitem{DG} \textsc{E. De Giorgi}: \textit{Sulla
differenziabilit\`a e l'analiticit\`a delle estremali degli
integrali multipli regolari}, Mem. Accad. Sci. Torino,
Cl. Sci. Fis. Mat. Nat., \textbf{3}, n. 3, 25--43.

\bibitem{DGCP} \textsc{E. De Giorgi, F. Colombini,
L. C. Piccinini}: Frontiere orientate di misura minima e
questioni collegate, Quaderni Sc. Norm. Sup. Pisa,
Ed. Tecn. Scient., Pisa 1972.

\end{thebibliography}
```

In order to make reference to an bibliography item in the text, authors are encouraged to use the instruction `\cite{...}`, where ... stands for the suitable label in `\bibitem{...}`. The use of this instruction permits to refer to the correct bibliography entry even if the order in the bibliography changes.

Use long and descriptive bibliography keys, like `\cite{DeG71}`, in order to avoid confusion with keys of other authors when assembling papers.

References

[1] M. Goossens, F. Mittelbach, A. Samarin: The LaTeX Companion, Addison-Wesley, Reading, MA, USA, 1994.

[2] D. E. Knuth: The TeXbook, Addison-Wesley, Reading, MA, USA, 1984.

[3] L. Lamport: LaTeX 2_ε. A document preparation system, 2nd revised ed., Addison-Wesley, Reading, MA, 1994.