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**ELECTRONIC COMMUNICATIONS in PROBABILITY**

# Introduction to the *ejpecp* Class Version 1.11.1*†

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**Abstract**

The LaTeX 2ε class *ejpecp* is designed for typesetting of articles to be published in the research periodicals *Electronic Journal of Probability* (EJP) and *Electronic Communications in Probability* (ECP).

**Keywords:** EJP ; ECP ; typesetting ; LaTeX.
**MSC2020 subject classifications:** NA.
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The LaTeX 2ε class *ejpecp* is designed for typesetting of articles for the Electronic Journal of Probability (EJP) and Electronic Communications in Probability (ECP). Please check on https://www.ctan.org/pkg/ejpecp that your are using the latest version of *ejpecp*. The *ejpecp* class comes with a commented sample file called `sample.tex`. You are probably reading the pdf version of this sample file, compiled with a pdflatex engine[1].

**An easy way to prepare an article for publication in EJP/ECP is to edit the source file `sample.tex` for this document. Replace the main body of the file with the main body of your article. Supply all metadata (title, authors, abstract, keywords, etc) that are requested in the latex file.**

The *ejpecp* class works only with the pdflatex engine, generating pdf files. You need a copy of the `ejpecp.cls` file in your directory[2] in order to compile documents based on the *ejpecp* class, such as `sample.tex`. To configure the *ejpecp* class for ECP, use

```
\documentclass[ECP]{ejpecp}
```

while for EJP, use

```
\documentclass[EJP]{ejpecp}
```

The *ejpecp* document class loads automatically the following packages:

```
amsmath, amsthm, amsfonts, amssymb, bera, dsfont,
    hyperref, geometry, graphicx, latexsym,
      mathtools, microtype, afterpackage.
```

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[1]The *ejpecp* class was also successfully tested with the lualatex next generation engine.
[2]Or in any location scanned for `cls` files by your pdflatex engine.

It is thus not necessary to add `\usepackage` load commands for these packages to your latex file. However, you may want to load additional packages, such as the *enumerate* package by using a `\usepackage` command. The precise location of these extra load commands is clearly mentioned in the `sample.tex` file. The *ejpecp* class provides various environments, and also important commands such as `\AUTHORS`, `\TITLE`, etc.

## 1 Standard predefined environments

One of the main features of the *ejpecp* class is its predefined environments.

**Theorem 1.1** (My theorem)**.** *This is the body of the theorem. This theorem has a name between parentheses, and this is implemented by adding an optional parameter between square brackets to the theorem environment, namely*

```
\begin{theorem}[My theorem] \label{th:1}
  This is the body of ...
\end{theorem}
```

*Proof of Theorem 1.1.* This is the body of the proof of the theorem above. This proof has a name, and this is implemented by adding an optional parameter between square brackets to the proof environment, namely

```
\begin{proof}[Proof of Theorem \ref{th:1}]
  This is the body of the proof of ...
\end{proof}
```

We recommend that you give names to most of your theorem-like environments. You cannot imagine how this helps your readers! The proof ends at the square box. □

Note that a square box □ is automatically added at the end of the proof by the environment "proof". The *ejpecp* class provides several default environments:

```
  assumption, assumptions, claim, condition, conjecture, corollary, definition,
definitions, example, exercise, fact, facts, heuristics, hypothesis, hypotheses,
   lemma, notation, notations, problem, proposition, question, remark, theorem
```

Let us give some more examples of environments in action.

**Lemma 1.2** (My lemma)**.** *Body of the Lemma.*

*Proof.* This is the body of a proof environment without name, obtained using

```
\begin{proof}
  This is the body of ...
\end{proof}
```

Note again the automatic inclusion of a square box at the right place → □

Here are some more examples of predefined environments:

**Lemma 1.3.** *Body of the Lemma. This lemma does not have a name.*

**Proposition 1.4** (My proposition)**.** *Body of the proposition.*

**Corollary 1.5** (My corollary)**.** *Body of the corollary.*

**Definition 1.6** (My definition)**.** *Body of the definition.*

**Conjecture 1.7** (My conjecture)**.** *Body of the conjecture.*

**Remark 1.8** (My remark)**.** Body of the remark. Note that the style of the body differs from the one used for theorems.

**Example 1.9** (My example)**.** Body of the example.

**Problem 1.10** (My problem)**.** Body of the problem.

These environments cover most author's needs. It is possible – but not recommended! – to define additional environments based on the theorem environment.

## 2 Fonts

The default font used by the *ejpecp* class is *bera*[3]. This font looks good but does not come with "small capitals" shape, making the command `\textsc{...}` ineffective. The *ejpecp* class uses the *double stroke font* as a replacement for `\mathbb`. For instance `\mathbb{B}` will produce $\mathbb{B}$ instead of $\mathbb{B}$. However, the original `\mathbb` command is still available via the command `\realmathbb{...}` (please avoid using it if possible). Note that `\mathbb{1}` produces $\mathbb{1}$, which is particularly attractive for indicators of sets.

## 3 Page numbering

EJP and ECP are purely electronic journals. Their volumes will never be printed. Each paper published in EJP and ECP has pages numbered starting from 1. This numbering scheme, used starting from 2012, was already used for the first volumes of EJP.

## 4 Section headings and equation numbering

The default size for section titles in LaTeX is a bit large. As you might have noticed, the *ejpecp* class provides smaller section titles. Here are some sub-sections:

### 4.1 A sub-section

### 4.2 Another sub-section

#### 4.2.1 A sub-sub-section

The following numbered displayed equation is the first in section 4:

$$\int_{-\infty}^{+\infty} e^{-t-e^{-t}}\,dt = 1 \quad \text{and} \quad \int_{-\infty}^{+\infty} te^{-t-e^{-t}}\,dt = \gamma. \tag{4.1}$$

It is produced with the following source code:

```
\begin{equation}\label{eq:myequation}
  \int_{-\infty}^{+\infty}\!e^{-t-e^{-t}}\,dt = 1
  \quad\text{and}\quad
  \int_{-\infty}^{+\infty}\!te^{-t-e^{-t}}\,dt = \gamma.
\end{equation}
```

You may refer to it by using `\eqref{eq:myequation}` which produces (4.1). Here is another numbered displayed equation

$$\int_{-\infty}^{+\infty} (t-\gamma)^2 e^{-t-e^{-t}}\,dt = \zeta(2) = \frac{\pi^2}{6}, \tag{4.2}$$

and yet another one, just for fun!

$$\int_{-\infty}^{+\infty} (t-\gamma)^3 e^{-t-e^{-t}}\,dt = 2\zeta(3). \tag{4.3}$$

[3] This is the name of the LaTeX package for *bitstream* fonts.

## 5 How to include graphics

You may include graphics in PDF or EPS or JPEG or PNG format as follows

```
\begin{figure}[htbp]
  \centering % gives better spacing than \begin{center}...\end{center}
  \includegraphics[scale=1.0]{filename}
  \caption{This is my figure.}
  \label{fi:myfigure}
\end{figure}
```

Note that in a figure environment, the `\label` should always appear after a `\caption` in order to produce a valid reference to the figure. You may play with the options `[htbp]` (see the LaTeX 2$_\varepsilon$ documentation for their meaning) and with the options of the `\includegraphics` command (see the documentation of the graphicx package).

## 6 About your source file for EJP and ECP

**Papers using the LaTeX class *ejpecp* are quickly published**, usually within a month. Some authors prefer TeX instead of LaTeX. Every author has his own preferences and habits. We believe that TeX is a good program. However EJP and ECP need a standardized layout for all papers, and this is easier done with LaTeX than with TeX. For that reason, you are strongly encouraged to use the LaTeX class *ejpecp* for your papers.

The aim of EJP and ECP is to publish excellent mathematical articles. All mathematicians believe that the mathematical results are the most important elements of an article. Many of them believe that the aesthetic aspects of the proof are also important. Some of them believe that even the writing style is important. Few of them believe that the LaTeX code needs to be elegant. A good LaTeX code is easier to maintain, to convert, and to read. It helps your co-authors, and helps to speed up the publication process. The current major version of LaTeX is called LaTeX 2$_\varepsilon$. Without being mandatory, it is useful to learn how to write genuine LaTeX 2$_\varepsilon$ code, rather than a mixture of TeX and old LaTeX (prior to LaTeX 2$_\varepsilon$). Here are some suggestions:

- never use `\def` for defining macros, use instead `\newcommand`
- never use `$$` for displayed equations, use instead the brackets `\[ \]`
- use `\textbf{}`, `\textit{}`, and `\emph{}` instead of `{\bf }`, `{\it }`, and `{\em }`
- never use one letter names for macros or for environments
- never use strange names for macros and environments
- use the environment proof provided by amsmath (as in *ejpecp*)
- use `\newenvironment` to define new environments
- use `\binom{n}{k}` instead of `n \choose k`
- use `\frac{a}{b}` instead of a `\over b`
- never use an exotic package if you do not really need it
- indent your code and avoid too long lines
- use prefixed labels such as `eq:` for equations and `th:` for theorems
- to produce graphics, avoid using *psfrag* or *XFig* and use instead *Ipe*
- learn how to interpret the error messages generated during compilation
- read the wiki-books on LaTeX and LaTeX Mathematics

## 7 How to help us

We (KB and DC) do not consider ourselves LaTeX 2$_\varepsilon$ experts. We will be happy to receive comments and suggestions for improvement (especially constructive ones).

## 8 How to include bibliography

The bibliography should be included in your document (not a separate file), inside the standard environment `thebibliography`. If you use bibtex, this can be accomplished by including the `bbl` file inside your document (after preliminary compilation with latex and bibtex). The bibliography should be sorted alphabetically according to authors names, and the records should be labeled by numbers. See the example below.

Links to the Math Reviews should be included as in the sample below. The simplest way to get automatically these Math Reviews links is to get all your bibtex entries from MathSciNet, and to use `\bibliographystyle{amsplain}`. This produces automatically the necessary `\MR` commands in your `\bibitems`, allowing *ejpecp* to automatically produce the links as in the sample below. Alternatively, if you are not using MathSciNet and bibtex, you may simply produce the Math Reviews links by using https://www.e-publications.org/ims/support/mref/

At your option, you may also manually provide the arXiv identifier for preprints or unpublished papers. It is your author responsibility to check if the preprint is actually published and referenced in the Mathematical Reviews, and in that case, you should provide the MR number instead of the arXiv identifier. It is acceptable to leave arXiv links in the bibliography (alongside MR links) even if the article has been published.

## Supplementary Material

**Title of Supplement A..** Short description of Supplement A.

**Title of Supplement B..** Short description of Supplement B.

## References

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