

Instructions for the Preparation of a Manuscript for the *Journal of the Physical Society of Japan*

Online-Journal Subcommittee of JPSJ*

The Physical Society of Japan, Tokyo 105-0011

(Received March 29, 2009)

This document explains how to prepare manuscripts for the *Journal of the Physical Society of Japan* using the $\text{\LaTeX} 2_{\epsilon}$ class file “jpsj2.cls”.

KEYWORDS: $\text{\LaTeX} 2_{\epsilon}$, amsmath.sty, graphicx.sty, EPS, PDF

1. Introduction

$\text{\LaTeX} 2_{\epsilon}$ has recently replaced the old version of $\text{\LaTeX} 2.09$. In order to use more convenient macros provided as the standard $\text{\LaTeX} 2_{\epsilon}$ distribution, we have prepared a $\text{\LaTeX} 2_{\epsilon}$ class file, `jpsj2.cls`, for the *Journal of the Physical Society of Japan* (JPSJ), which is based on the former $\text{\LaTeX}$ style file, `jpsj.sty`.

The basic usage of this class file is the same as that with `jpsj.sty`. Please note that we *continue* to accept $\text{\LaTeX} 2.09$ -based manuscripts as well.

For basic usage of $\text{\LaTeX} 2_{\epsilon}$, the standard reference will help you.¹

2. Changes

2.1 Discarded

Since `jpsj2.cls` is designed only for submission to JPSJ, we have discarded (1) `full` environment, (2) `short` option and (3) `preprint` option.

2.2 Font selection

A major difference between $\text{\LaTeX} 2_{\epsilon}$ and $\text{\LaTeX} 2.09$ is the mechanism of font selection (see Table I). We recommend that authors use the new commands although `jpsj2.cls` is compatible with the old commands.

2.3 Class options

The following is a list of class options.

`[letter]` for letter papers

`[shortnote]` for short notes

`[comment]` for comments

*E-mail address: jpsj-online@jpsj.or.jp

Table I. New and old commands for font selection.

New	Old	Output
<code>\textbf{boldface}</code>	<code>{\bf boldface}</code>	boldface
<code>\textit{italic}</code>	<code>{\it italic}</code>	<i>italic</i>
<code>\textsf{sans serif}</code>	<code>{\sf sans serif}</code>	sans serif
<code>\textsc{Small Capital}</code>	<code>{\sc Small Cap}</code>	SMALL CAP
<code>\emph{emphasis}</code>	<code>{\em emphasis}</code>	<i>emphasis</i>
<code>\mathcal{CALLIGRAPHY}</code>	<code>{\cal CALLIGRAPHY}</code>	<i>CALLIGRAPHY</i>
<code>\mib{math bolditalic}*}</code>	<code>{\mib math bolditalic}</code>	<i>math bolditalic</i>

*prepared by JPSJ

[addenda] for addenda

[errata] for errata

[twocolumn] for twocolumn typesetting

[letterpaper] for printing on letter-size papers (not valid in combination with the twocolumn option)

3. AMSMATH Package

The standard $\text{\LaTeX} 2_{\varepsilon}$ distribution contains the `amsmath` package. `jpsj2.cls` automatically loads so that authors can use numerous convenient environments/commands for math equations.

In $\text{\LaTeX}$ 2.09, we have used the `eqnarray` environment in order to typeset aligned equations. However, we have had difficulty when we want more complicated alignment.

The following is a list of typical environments/commands of the `amsmath` package.

Please refer to the appropriate references for details.^{2,3}

3.1 Multiple line equations

(1) `align` replaces the `eqnarray` environment.

```
\begin{align}
m_{\{x\}} &= \frac{\sqrt{3}}{2} (S_{\{b\}} - S_{\{c\}}), \quad \backslash\backslash
m_{\{y\}} &= \frac{3}{2} S_{\{a\}} - \frac{1}{2}.
\end{align}
```

$$m_x = \frac{\sqrt{3}}{2} (S_b - S_c), \quad (1)$$

$$m_y = \frac{3}{2} S_a - \frac{1}{2}. \quad (2)$$

(2) `split` always appears with the `equation` environment.

```
\begin{equation}
\begin{split}
m_{\{x\}} &= \frac{\sqrt{3}}{2} (S_{\{b\}} - S_{\{c\}}), \\
&= \frac{3}{2} S_{\{a\}} - \frac{1}{2}.
\end{split}
\end{equation}
```

$$\begin{aligned} m_x &= \frac{\sqrt{3}}{2} (S_b - S_c), \\ &= \frac{3}{2} S_a - \frac{1}{2}. \end{aligned} \tag{3}$$

(3) `multline` replaces the `lefteqn` command.

```
\begin{multline}
A + B + C + D + E + F \\
= G + H + I + J + K \\
- L + M + N + O + Q + R + S
\end{multline}
```

$$\begin{aligned} A + B + C + D + E + F \\ = G + H + I + J + K \\ - L + M + N + O + Q + R + S \end{aligned} \tag{4}$$

(4) Subequations can be typeset in the same way as in `jpsj.sty`; however, the `subeqnarray` has been discarded. If you want to obtain a subequation array,

```
\begin{subequations}
\begin{align}
a &= \frac{b}{c} \\
d &= \frac{e}{f}
\end{align}
\end{subequations}
```

$$a = \frac{b}{c} \tag{5a}$$

$$d = \frac{e}{f} \tag{5b}$$

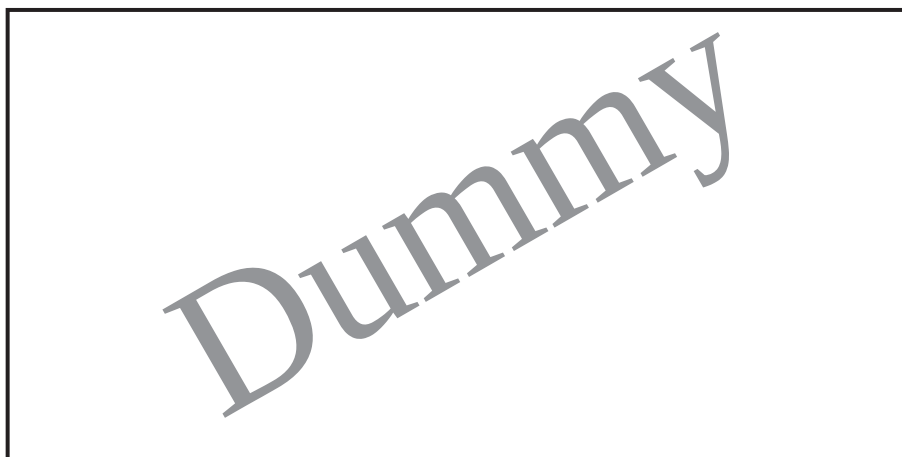


Fig. 1. You can put EPS files into the document.

3.2 Matrices

You can typeset matrices much more easily with plain $\text{\TeX}$ -like environments such as `matrix`, `pmatrix`, `bmatrix` and `vmatrix`.

4. Embedding Figures

`jpsj2.cls` automatically loads the `graphicx` package so that you embed EPS files into the document (we accept only EPS) as shown in Fig. 1. Although the command `epsfigure` still remains, we recommend using an ordinary command, “`\includegraphics`” instead.

5. Comments

If you have trouble or find a bug, please e-mail the Online-Journal Subcommittee of JPSJ.⁴ Your comments on this class file will be welcome.

References

- 1) L. Lamport: *LaTeX: A Document Preparation System* (Addison-Wesley, Reading, 1994) 2nd ed., Translation by H. Abe (Pearson Education, Tokyo, 1999) [in Japanese].
- 2) M. Goossens, F. Mettelbach and A. Samarin: *The LaTeX Companion* (Addison-Wesley, Reading, 1994) Translation by ASCII Corp. (ASCII, Tokyo, 1998) p. 257 [in Japanese].
- 3) A. Diller: *LaTeX Line by Line* (John Wiley & Sons, Chichester, 1999) 2nd ed., p. 129.
- 4) E-mail address is `jpsj-online@jps.or.jp`