



## Bulletin of the Astronomical Society of India: L<sup>A</sup>T<sub>E</sub>X class guide for authors (Version 2.1)

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**Abstract.** This guide explains the usage of Version 2.1 the L<sup>A</sup>T<sub>E</sub>X class file for the Bulletin of the Astronomical Society of India. The class file `basi.cls`, this guide and a sample paper are available from the BASI webpage:

<http://www.ncra.tifr.res.in/~basi/>

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### 1. Introduction

A L<sup>A</sup>T<sub>E</sub>X class file for the Bulletin of the Astronomical Society of India has been sought by the contributors to the Journal for several years now, particularly when the time comes to submit the papers for the proceedings of the ASI meetings. The class file `basi.cls` is an attempt to fill this long-felt need. In addition to making it easier for the authors to typeset papers in the format of the Bulletin of the Astronomical Society of India, this class file would make it possible for BASI to accept electronic submissions and reduce time and effort in final production. This guide lists the special commands introduced in `basi.cls` and gives a brief explanation as to how to use them to obtain output in BASI format. This guide refers to Version 2.1 of `basi.cls`, released 2012 January. In addition to this guide, a sample paper (`basisample.tex`) illustrates several features of `basi.cls` in more detail.

This guide is not a substitute for the L<sup>A</sup>T<sub>E</sub>X manual. Commands described in the L<sup>A</sup>T<sub>E</sub>X manual will not be repeated here.

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## 2. Using the BASI class

### 2.1 General

If the file `basi.cls` is not already in the appropriate system directory, either arrange for it to be put there or copy it to your working directory. Also required is the `asi-logo.eps` file, for inclusion of the ASI logo to the top right of the first page. In order to use the BASI class begin your document with:

```
\documentclass{basi}
```

The class options available with `basi` include (i) `doublespacing` (useful when drafting papers, or for referees, see Section 2.2), (ii) `conference` (for papers published in the ASI Conference Series, with slightly narrower pages), and (iii) `usenatbib` (see Section 4). For conference papers, the additional commands, `\conference{...}` and `\editors{...}` (or `\editor{...}`) are used to specify the conference title (if two lines are required, use `\\` between them) and the editor(s) respectively.

### 2.2 Spacing

By default `basi.cls` will typeset your manuscript in single spacing. If you want a double spaced output you should use the `doublespacing` option of the document class:

```
\documentclass[doublespacing]{basi}
```

This sets `\baselinestretch` to 1.7. Double spaced output is sometimes needed for the referees. If you are requested by the Editor to submit a final formatted version, it must be single spaced.

### 2.3 Inclusion of figures

Postscript (encapsulated) figures can be included using the `\includegraphics[...]{...}` command from the `graphicx` package (which is loaded automatically by `basi.cls`). The `\includegraphics[...]{...}` command includes options for scaling, rotating and clipping postscript figures, see the sample paper (`basisample`) for more details.

## 2.4 Landscape pages

Using the `rotating` package it is possible to easily include individually rotated figures or tables in your paper, see the sample paper (`basisample`) for more details.

## 2.5 Fonts

You may want to load the `txfonts` package, by including `\usepackage[varg]{txfonts}` in the preamble of your document. This package should be available in most recent L<sup>A</sup>T<sub>E</sub>X implementations, so that Times-Roman based fonts are used (including matching fonts for mathematics).

## 3. Title, Author, Abstract and Keywords

The first few lines of your document must specify the title of the paper, the names and addresses of the authors, an abstract and suitable keywords. The BASI class file provides special commands for formatting this matter.

The title of the article and the author's name (or authors' names) are used both at the beginning of the article and on the top of every page. The title is used on odd-numbered pages and the authors' names on even numbered pages. But while the main heading and the author list can be long, text more than about 50 characters cannot be accepted as running heads. You may therefore need to provide an alternative short title and/or authors' names in the command specifying title and author as below:

```
\title[GRB 990123 afterglow]
  {Optical follow-up of the afterglow of the\\
  very energetic Gamma-Ray Burst GRB~990123\\
  from UPSO, Naini Tal}
\author[R.\ Sagar et al.]
  {R.\ Sagar,$^1$\thanks{email: sagar@upso.ernet.in}
  A.~K.\ Pandey,$^1$ V.\ Mohan,$^1$ R.~K.~S.\ Yadav,$^1$
  \newauthor
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  $^2$Raman Research Institute, Bangalore 560 080,
  India\\
  $^3$IAA-CSIC, P.O.\ Box 03004, E-18080,
  Granada, Spain}
```

`\maketitle`

There are several points to note here:

1. The running heads (title as well as author) are provided inside the square brackets `[]` of the `\title` and `\author` commands, while the main title and author list appear inside `{}`.
2. The main title and the author list can contain multi-line expressions but the running heads cannot.
3. In the `\author` command the text appearing after the usual line break instruction `\\` is always taken to be an address and is formatted as such. All the authors' names must therefore precede the first `\\` instruction within the `author` command.
4. If the main author list needs to be typeset in more than one line then the line break is provided through `\newauthor` command and not through `\\`.
5. Within the `\author` command `\thanks` produces a footnote.
6. After the `\title` and `\author` commands a `\maketitle` must follow.

Immediately following the above title–author block, you should include an abstract followed by a set of keywords. To accomplish this, the BASI class file provides the `abstract` and `keywords` environments. The keywords should be chosen from the list available on the BASI website. For example, the abstract and keywords of this guide were typeset using the commands:

```
\begin{abstract}
This guide explains the usage of the \LaTeX\ class file for the
Bulletin of the Astronomical Society of India.
\end{abstract}

\begin{keywords}
\LaTeX\ -- class files: \verb+basi.cls+ -- sample text -- user guide
\end{keywords}
```

#### **4. Bibliography and the rest**

All other commands, including bibliography formatting and citing, work as in the standard  $\LaTeX$  article class. No special command has been introduced for formatting the list of references, they should appear, as usual in the `\thebibliography` environment, each entry as an individual `\bibitem`. However, a few changes have been made in the output format of the references to suit the BASI class. For example, it is set in a smaller font than the text, and the serial number of the

references are omitted. However, for compatibility reasons the `\thebibliography` command must have a dummy empty argument.

For example, the code below produces the list of references that follow:

```
\begin{thebibliography}{}
\bibitem{baile:89} Bailes M., 1989, ApJ, 342, 917
\bibitem{bhatt:96} Bhattacharya D., 1996, in Alpar M.~A., et al., eds,
  Lives of the Neutron Stars, Kluwer Academic Publishers, Dordrecht,
  in press
\bibitem{bs:91} Bhattacharya D., Srinivasan G., 1991, in
  Ventura J., Pines D., eds, Neutron Stars: Theory and Observation,
  Kluwer Academic Publishers, Dordrecht, p.~219
\bibitem{bwhv:92} Bhattacharya D., Wijers R.~A.~M.~J.,
  Hartman J.~W., Verbunt F., 1992, A&A, 254, 198
\end{thebibliography}
```

It is also possible to use the `natbib` package, and this should be loaded by starting with `\documentclass[usenatbib]{basi}`, which loads the package, and sets up appropriate options. Note that the syntax of the `\bibitem` entries in this case must be consistent with the `natbib` package – see the examples in the comments at the beginning of `natbib.sty` file – which is not as shown above. See the sample paper (`basisample`) for more details, and also instructions for how to use the NASA Astronomical Database System (ADS) to easily produce the `\bibitem` text for cited papers.

## References

Bailes M., 1989, ApJ, 342, 917  
 Bhattacharya D., 1996, in Alpar M. A., et al., eds, Lives of the Neutron Stars, Kluwer Academic Publishers, Dordrecht, in press  
 Bhattacharya D., Srinivasan G., 1991, in Ventura J., Pines D., eds, Neutron Stars: Theory and Observation, Kluwer Academic Publishers, Dordrecht, p. 219  
 Bhattacharya D., Wijers R. A. M. J., Hartman J. W. Verbunt F., 1992, A&A, 254, 198

## 5. Editorial commands

The following commands

```
\pubyear{2012}
\volume{00}
\pagerange{000--000}
```

are provided for publication year, volume and page range to appear in the catch line at the top of the first page. (Alternatively, if `\label{firstpage}` and `\label{lastpage}` are included at the start and end of the paper, then, `\pageref{firstpage}--\pageref{lastpage}` can be used, to automatically set the page range. Also, `\setcounter{page}{...}` can be used at the start of the paper to set the first page number.) Received and accepted dates for the paper can be added before the abstract using:

```
\date{Received ... ; Accepted ...}
```

In addition, the `\status{...}` command can be used to replace the page range on the first page with some text, e.g. `\status{submitted}` or `\status{in press}`.

The final typesetting of the paper for production will always be in Times Roman fonts instead of the default Computer Modern fonts of L<sup>A</sup>T<sub>E</sub>X. This is achieved by processing the document with the package `txfonts` available as a part of the standard L<sup>A</sup>T<sub>E</sub>X distribution in the last few years. Note that the location of line breaks and page breaks may be slightly different for different fonts.

## Acknowledgements

### Version 1.0

Writing the file `basi.cls` has been prompted by the numerous requests I received for something of this form during the years I spent as the secretary of the Astronomical Society of India. However it finally saw the light of the day when it became necessary to process some of my own papers rather quickly, and I found that electronic typesetting using this class file would be a way to substantially reduce the production time. I am grateful to the large community of authors for demanding a L<sup>A</sup>T<sub>E</sub>X class file, and to the Editor Harish C. Bhatt for encouraging me to make this available. Thanks are due to Sandra Rajiva for checking through the outputs carefully to ensure that the formatting is correct in detail.

*Dipankar Bhattacharya, 2003 April*

### Version 2.0

This update of `basi.cls` adds a few additional features (e.g. the Astronomical Society of India logo on the first page), and is accompanied by a sample paper (`basisample.tex`), that illustrates various features.

*David A. Green, 2011 February*