USING THE SIAM LaTeX STYLE*

HOWARD TRICKEY†

Abstract. This note explains how to use a LaTeX style that produces a good approximation to the style used in SIAM journals. The note is itself an example of the `siam` style in action.

Key words. Document preparation, LaTeX, SIAM

1. Introduction. The *Society for Industrial and Applied Mathematics (SIAM)* publishes a number of journals, as shown in Table 1. Authors who have prepared their articles using LaTeX [2] can get them formatted in a style identical to a typical paper in one of those journals. Input that is suitable for the LaTeX `article` style needs only a couple of modifications besides changing the document style to `siam`.

This paper itself gives an example of the `siam` style. Figure 1 is an outline of the input used.

2. Title Material. Use the LaTeX `\title` and `\author` declarations and the `\maketitle` command as usual. SIAM journals don't put author affiliations below or beside the author(s); instead, use `\thanks` to list addresses. In fact, it is an error to use `\\` in the `\author` command, because it interferes with some fairly fancy footwork that the style uses to change the author and title to all uppercase. If there are several authors with the same affiliation, the best I can suggest is to `\thanks` only one, see what footnote mark comes out, and manually place it after the others (sorry).

The `\maketitle` can be followed by an abstract and/or a keywords section, as shown in the introduction.

3. Figures and Tables. SIAM tables have their captions above the table contents, while figures have captions below the contents. Place the `\caption` command accordingly. Figure 1 and Table 1 were examples.

4. Mathematics. Equations are entered as usual. SIAM journals put equation numbers on the left. It appears to be up to the author whether equations are numbered within a section (e.g., (4.2)) or within the paper (e.g., (2)). The `siam` style uses the latter, as this example from the *SIAM Journal on Numerical Analysis* [1] shows:

$$(1) \qquad r_k = \int_{-\Delta}^{\Delta} r(2k\Delta + \tau)\, d\tau \qquad (0 \le k \le n)$$

There are four "theorem-like" environments predefined: theorem, lemma, corollary, and proposition. Again, SIAM does not appear to prescribe the exact numbering scheme to be used. The `siam` style numbers them all in the same index space, and not within each section. There is also a `\proof` environment. For example, here is Theorem 1 of the example paper [1]:

THEOREM 4.1. *Suppose the ramp reflectance is sampled. Then*

$$(2) \qquad \|R_j\|_2 \le c_0 \equiv \|R_X\| < 1$$

whenever $(j+1)\Delta \le X$*; thus the discrete inverse problem can be solved, yielding a positive discrete impedance profile.*

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† AT&T Bell Laboratories, 600 Mountain Ave., Murray Hill, NJ 07974. `research!trickey` or `trickey@btl.csnet`

TABLE 1
SIAM Publications

SIAM Journal on Algebraic and Discrete Methods
SIAM Journal on Applied Mathematics
SIAM Journal on Computing
SIAM Journal on Control and Optimization
SIAM Journal on Mathematical Analysis
SIAM Journal on Numerical Analysis
SIAM Journal on Scientific and Statistical Computing

```
\documentstyle{siam}
\title{Using the SIAM \LaTeX\ Style%
        \thanks{This document was written September 24, 1986.}}
\author{Howard Trickey%
        \thanks{AT\&T Bell Laboratories, 600 Mountain Ave.,
                Murray Hill, NJ 07974.
                {\tt research!trickey} or {\tt trickey@btl.csnet}}}
\begin{document}
\maketitle
\begin{abstract}
This note explains ...
\end{abstract}
\begin{keywords}
Document preparation, \LaTeX, SIAM
\end{keywords}

\section{Introduction}
...
\section*{Acknowledgment}
\bibliography{siam}
\bibliographystyle{siam}
\end{document}
```

FIG. 1. *Input used to produce this paper*

Proof. Fix Δ, and fix j and x with $0 < x = (j+1)\Delta \leq X$.
...so since R_j is symmetric, (2) follows. □

5. SIAM Bibliographies. The `siam` bibliography style uses numeric labels, abbreviations from Mathematical Reviews, titles in italics, mixed upper-lower case for book titles, lower case for article titles, and uses commas to separate fields. SIAM journal articles sometimes order the entries alphabetically, sometimes order-of-reference. The `siam` style does alphabetic ordering.

6. Page Styles. Use the `plain` style, or perhaps `empty` or `myheadings`. The `headings` style doesn't do the right thing. (A problem with making `headings` work is that often the title and/or authors have to be abbreviated to fit in the headings.)

Acknowledgment. Eric Grosse and Bill Coughran were the instigators and first users of this style. Eric has made it available via *netlib*, a repository of mathematical software. You can get the `siam` style files by

```
mail research!netlib
send latex from siam
```

REFERENCES

[1] K. P. Bube, *Numerical methods for reflection inverse problems: Convergence and nonimpulsive sources*, SIAM J. Numerical Analysis, 23 (1986), pp. 227–258.

[2] L. Lamport, *LaTeX: A Document Preparation System*, Addison-Wesley, Reading, Massachusetts, 1986.