Programs and Algorithms of Numerical Mathematics 23
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SAMPLE CONTRIBUTION TO THE PROCEEDINGS OF PANM 23

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Abstract: This sample file serves as an illustration how to prepare a contribution to PANM 23 proceedings in LaTeX. The authors are kindly asked to follow this style when preparing their manuscripts.

Keywords: finite element method, domain decomposition, parallel algorithms

MSC: 65N15, 65M15, 65F08

1. Introduction

This document has been prepared using the provided `panm.cls` class file. The simplest and recommended way to prepare a contribution is to edit this `sample.tex` file.

To include figures, we recommend the command `\includegraphics` (from packages *graphics*, *graphicx*, or *epsfig*). See Fig. 1 for an example.

Figure 1: This figure was created in Linux by `xfig`.

When preparing graphics, please keep in mind that the proceedings will be printed in grayscale and scaled down to the size of A5 paper. Although colours may be used in the online version, your graphics should keep legibility when printed. For good results, the text appearing at graphics (description of axes in plots, etc.) should

be comparable in size to the main text. Table 1 shows recommended formatting of tables.

#proc	64	128	256	512	1024
case 1					
set-up (sec)	61.0	37.7	25.7	23.2	39.5
iter (sec)	22.3	19.9	27.8	44.9	97.5
case 2					
set-up (sec)	49.5	29.0	18.4	12.6	11.0
iter (sec)	28.5	22.6	16.7	14.7	13.2

Table 1: Strong scaling for different cases.

Equations are included using the standard `equation` environment, e.g.

$$a + b = c. \tag{1}$$

For series of equations, we recommend using the `eqnarray` environment

$$\begin{aligned} a \times b &= c, && (2)\\ d - e &= f, && (3) \end{aligned}$$

or even better the `align` environment

$$\begin{aligned} a \times b &= c, && (4)\\ d - e &= f \end{aligned}$$

that generates more compact expressions; see the amount of spacing around the equality sign.

Command `(\ref{})` produces references to these equations in the text, such as (1), (2)–(3).

Mathematical lemmas and theorems have special environment, `lemma` and `theorem`, respectively. Examples are Lemma 1 and Theorem 2.

Lemma 1. *The following statement is valid:*

$$1 + 1 = 2. \tag{5}$$

Theorem 2 (Lax–Milgram)**.** *Let a bilinear form $a(\cdot, \cdot)$ satisfy $a(u, u) \geq \gamma \|u\|_V^2$ for all $u \in V$ (ellipticity) and $a(u, v) \leq \Gamma \|u\|_V \|v\|_V$ for all $u, v \in V$ (continuity). Let a linear functional $\ell(v) \leq \Lambda \|v\|_V$ for all $v \in V$ (continuity). Then there exists a unique $u \in V$ for which*

$$a(u, v) = \ell(v) \quad \textit{for all} \quad v \in V. \tag{6}$$

The bibliographic sources are cited by the command `\cite`. Notice the recommended style of the bibliography – an article in proceedings [1], a book [2], a journal article [3], a Ph.D. thesis [4], and a technical report [5]. Bibliography is sorted alphabetically by surname of the first author and then by year of publication. Users of BibTeX can achieve this behaviour by using provided bibliography style `panm.bst`.

With BibTeX, the PDF output is produced as

1. `pdflatex sample`
2. `bibtex sample`
3. `pdflatex sample`
4. `pdflatex sample`

In this case, insert the final `*.bbl` file into the `*.tex` file before submission.

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