

## Here is the Title

First Author<sup>1,\*</sup> and Co-Author(s)<sup>2</sup>

<sup>1</sup> address of First Author

<sup>2</sup> address of Co-Author(s)

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**Abstract.** The abstract should provide the application context and briefly summarise the main findings. It should not be too long — normally no longer than half a page.

**AMS subject classifications:** 65M10, 78A48

**Key words:** At least 3 items and at most 5 items.

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### 1. Preparation of Manuscript

The Title Page should contain the article title, authors' names and complete affiliations, footnotes to the title, and the postal address for manuscript correspondence (including e-mail address). The Abstract should provide a brief summary of the main findings of the paper.

### 2. Introduction

The Introduction should provide details of the application context and previous relevant publications, leading to a brief summary of the direction of the research undertaken and the following structure of the article (Sections).

#### 2.1. Equations

For preparation of the manuscript we strongly recommend using `EAJAM-template.tex` file and examples provided there.

Thus equations should be typewritten by using `equation`, `align`, `multline` environments. For example, for numbered one-line formulas use the construction

```
\begin{equation}\label{eq2.1}
\text{This is a sample equation:}\quad ax=c.
\end{equation}
```

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to obtain

$$\text{This is a sample equation: } ax = c. \quad (2.1)$$

Please avoid the obsolete `\eqnarray` environment, which has several bugs.

## 2.2. Numbered multi-line equations

**Example 2.1.** The equation

$$v_h(x, y) = V_1(x, y), \quad (2.2)$$

$$v_h^+(x, y) = v_h^-(x, y). \quad (2.3)$$

can be written as

```
\begin{align}
v_h(x, y) &= V_1(x, y), \label{eq2.2} \\
v_h^+(x, y) &= v_h^-(x, y). \label{eq2.3}
\end{align}
```

**Example 2.2.** The equation

$$v_h(x, y) = V_1(x, y), \quad (2.4)$$

$$v_h^+(x, y) = v_h^-(x, y).$$

can be written as

```
\begin{equation} \label{eq2.4}
\begin{aligned}
v_h(x, y) &= V_1(x, y), \\
v_h^+(x, y) &= v_h^-(x, y).
\end{aligned}
\end{equation}
```

**Example 2.3.** The equation

$$\begin{aligned} v_h(x, y) &= V_1(x, y) + v_h^-(x, y) \\ &+ V_2(x, y) + v_h^+(x, y). \end{aligned} \quad (2.5)$$

can be written as

```
\begin{align}
v_h(x, y) &= V_1(x, y) + v_h^-(x, y) \nonumber \\
&\quad + V_2(x, y) + v_h^+(x, y). \label{eq2.5}
\end{align}
```

Equations should be cited by using the `\eqref` command and the form `Eq. \eqref{eq2.1}` or simply `\eqref{eq2.1}`. In the text they appear as Eq. (2.1) or (2.1).

### 2.3. Non-numbered equations

For non-numbered equations, please use the commands `equation*`, `align*`, `multline*` rather than `$$` `$$` and `\[` `\]`. For example, the equation

$$a \neq b$$

should be written as

```
\begin{equation*}
a \neq b
\end{equation*}
```

### 2.4. Theorems, corollaries, lemmas, definitions

Definitions should be written by using the `definition` command:

**Definition 2.1.** A matrix  $A$  is called invertible if there exists a matrix  $B$  such that  $AB = BA = E$ , where  $E$  is the identity matrix.

On the other hand, theorems, corollaries and lemmas are typeset in italics.

**Lemma 2.1.** *If  $A \geq 2 - \epsilon$ , then the Galerkin method is stable.*

Results from other sources can be written in the form

**Theorem 2.1** (cf. Author & Co-Author [1]). *If  $a \neq 0$ , then the Eq. (2.1) has a unique solution.*

*Proof.* A special environment is predefined: the *proof* environment. Please use

```
\begin{proof}
proof of the statement
\qed
\end{proof}
```

for typesetting your proofs. □

### 2.5. References

References should be listed at the end of the paper in alphabetical order according to the surnames of the first author, and should be cited in the text using `\cite` command as `\cite{firstauthor,Berger,deBoor,coutsias1996}`. In the text the citations will appear as [1–3,5].

Abbreviations of titles of periodicals/books should be given by using `Math. Reviews`, see e.g. <https://mathscinet.ams.org/msnhtml/serials.pdf>

## 2.6. Figures

Figures should be in a finished form suitable for publication (preferably in eps format). Number figures consecutively with Arabic numerals. Lettering on drawings should be generated by high-resolution computer graphics and large enough to withstand appropriate reduction for publication.

Here are some templates for figures:

```
\begin{figure}[!tbh]
\centering
\includegraphics[scale=0.5]{filename}
\caption {Example 1.}
\label{fig1}
\end{figure}
```



Figure 1: Example 1.

```
\begin{figure}[!tbh]
\centering
\includegraphics[width=1in,height=2in]{filename}
\caption {Example 2.}
\label{fig2}
\end{figure}
```



Figure 2: Example 2.

```

\begin{figure}[!tbh]
\centering
\includegraphics[width=40mm]{filename}
\caption {Example 3.}
\label{fig3}
\end{figure}

```



Figure 3: Example 3.

```

\begin{figure}[!tbh]
\centering
\includegraphics[height=2cm]{filename}
\caption {Example 4.}
\label{fig4}
\end{figure}

```



Figure 4: Example 4.

```

\begin{figure}[!tbh]
\centering
\begin{minipage}{0.47\textwidth}
\centering
\includegraphics[height=3.5cm]{filename}
\end{minipage}
\begin{minipage}{0.47\textwidth}
\centering
\includegraphics[height=3.5cm]{filename}
\end{minipage}
\caption {Example 5.}
\label{fig5}
\end{figure}

```



Figure 5: Example 5.

```

\begin{figure}[!tbh]
\centering
\begin{minipage}{0.45\textwidth}
\centering
\includegraphics[width=4cm,height=6cm]{filename}\\
\scriptsize{a)}
\end{minipage}
\begin{minipage}{0.45\textwidth}
\centering
\includegraphics[width=4cm,height=6cm]{filename}\\
\scriptsize{b)}
\end{minipage}
\caption {Example 6.}
\label{fig6}
\end{figure}

```

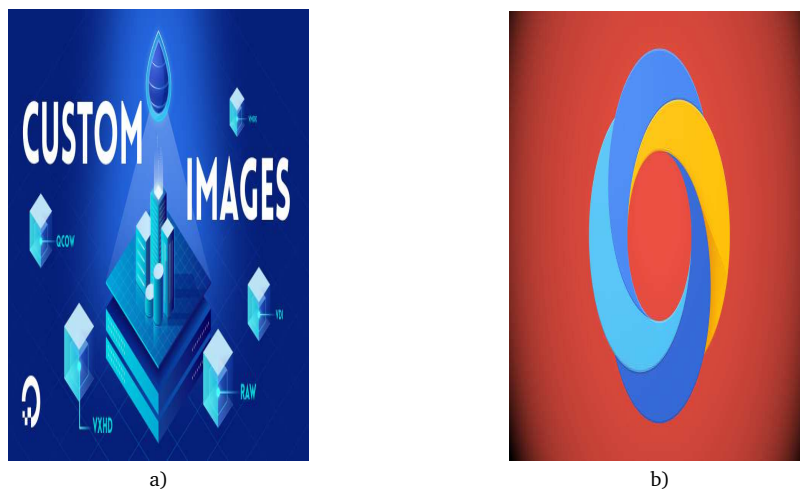


Figure 6: Example 6.

## 2.7. Tables

Here are some templates for tables:

```
\begin{table}[!tbh]
\caption{Example 1.}
\label{ex_1}
\centering
\medskip\small\renewcommand{\arraystretch}{1.15}
\begin{tabular}{||cccc||}
\hline
 $N_t$  &  $L_\infty$  Error & CR &  $L_\infty$  Error & CR & \\
\hline
8 & 6.3603e-01 & - & 5.2903e-02 & - & \\
16 & 2.1078e-01 & 1.59 & 1.0824e-02 & 2.29 & \\
32 & 7.9903e-02 & 1.40 & 2.6661e-03 & 2.02 & \\
64 & 3.5422e-02 & 1.17 & 6.7627e-04 & 1.98 & \\
\hline
\end{tabular}
\end{table}
```

Table 1: Example 1.

$N_t$	$L_\infty$ Error	CR	$L_\infty$ Error	CR
8	6.3603e-01	-	5.2903e-02	-
16	2.1078e-01	1.59	1.0824e-02	2.29
32	7.9903e-02	1.40	2.6661e-03	2.02
64	3.5422e-02	1.17	6.7627e-04	1.98

```
\begin{table}[!tbh]
\caption{Example 2.}
\label{ex_2}
\centering
\medskip\small\renewcommand{\arraystretch}{1.15}
\begin{tabular}{|||cccc||}
\hline
 $N_t$  &  $L_\infty$  Error & CR &  $L_\infty$  Error & CR & \\
\hline
1 & 8 & 6.3603e-01 & - & 5.2903e-02 & - & \\
2 & 16 & 2.1078e-01 & 1.59 & 1.0824e-02 & 2.29 & \\
3 & 32 & 7.9903e-02 & 1.40 & 2.6661e-03 & 2.02 & \\
4 & 64 & 3.5422e-02 & 1.17 & 6.7627e-04 & 1.98 & \\
\hline
\end{tabular}
\end{table}
```

Table 2: Example 2.

	$N_t$	$L_\infty$ Error	CR	$L_\infty$ Error	CR
1	8	6.3603e-01	-	5.2903e-02	-
2	16	2.1078e-01	1.59	1.0824e-02	2.29
3	32	7.9903e-02	1.40	2.6661e-03	2.02
4	64	3.5422e-02	1.17	6.7627e-04	1.98

```

\begin{table}[!tbh]
\caption{Example 3.}
\label{t3}
\centering
\medskip\small\renewcommand{\arraystretch}{1.15}
\begin{tabular}{||cccc|cccc||}
\hline
\multicolumn{10}{|c|}{Accuracy of time discretisation} \\
\hline
 $N_t$  &  $L_\infty$  Error & CR &  $L_\infty$  Error & CR &  $N_t$  &  $L_\infty$  Error & CR &  $L_\infty$  Error & CR \\
\hline
8 & 6.3603e-01 & - & 5.2903e-02 & - & 4 & 8.0540e-02 & - & 1.7316e-02 & - \\
16 & 2.1078e-01 & 1.59 & 1.0824e-02 & 2.29 & 8 & 7.7251e-03 & 3.38 & 1.1771e-03 & 3.89 \\
32 & 7.9903e-02 & 1.40 & 2.6661e-03 & 2.02 & 16 & 1.0326e-03 & 2.90 & 8.9444e-05 & 3.72 \\
64 & 3.5422e-02 & 1.17 & 6.7627e-04 & 1.98 & 32 & 1.4975e-04 & 2.79 & 2.5044e-05 & 1.84 \\
\hline
\end{tabular}
\end{table}

```

Table 3: Example 3.

Accuracy of time discretisation, $N_x \times N_y = 4096^2$									
$N_t$	$L_\infty$ Error	CR	$L_\infty$ Error	CR	$N_t$	$L_\infty$ Error	CR	$L_\infty$ Error	CR
8	6.3603e-01	-	5.2903e-02	-	4	8.0540e-02	-	1.7316e-02	-
16	2.1078e-01	1.59	1.0824e-02	2.29	8	7.7251e-03	3.38	1.1771e-03	3.89
32	7.9903e-02	1.40	2.6661e-03	2.02	16	1.0326e-03	2.90	8.9444e-05	3.72
64	3.5422e-02	1.17	6.7627e-04	1.98	32	1.4975e-04	2.79	2.5044e-05	1.84



```

\begin{table}[!tbh]
\caption{Example 4.}
\label{t4}
\centering
\medskip\small\renewcommand{\arraystretch}{1.15}
\begin{tabular}{||l|cccc||}
\hline
&  $N_t$  &  $L_\infty$  Error & CR &  $L_\infty$  Error & CR & \\
\cline{3-5}
1 & 8 & 6.3603e-01 & - & 5.2903e-02 & - & \\
2 & 16 & 2.1078e-01 & 1.59 & 1.0824e-02 & 2.29 & \\
3 & 32 & 7.9903e-02 & 1.40 & 2.6661e-03 & 2.02 & \\
4 & 64 & 3.5422e-02 & 1.17 & 6.7627e-04 & 1.98 & \\
\hline
\end{tabular}
\end{table}

```

Table 4: Example 4.

	$N_t$	$L_\infty$ Error	CR	$L_\infty$ Error	CR
1	8	6.3603e-01	-	5.2903e-02	-
2	16	2.1078e-01	1.59	1.0824e-02	2.29
3	32	7.9903e-02	1.40	2.6661e-03	2.02
4	64	3.5422e-02	1.17	6.7627e-04	1.98

For big tables you can change font size

```
\medskip\small\renewcommand{\arraystretch}{1.15}
```

to

```
\medskip\footnotesize\renewcommand{\arraystretch}{1.15}
```

and/or reduce space between columns

```
\addtolength{\tabcolsep}{-0.9mm}
```

and/or reduce space between rows

```
\medskip\small\renewcommand{\arraystretch}{1.02}
```

## Acknowledgments

At the end of paper but preceding the References.

## References

- [1] F. Author and A. Co-Author, *Preparation of manuscript*, Intern. Public. **1**, 12–21 (2018).
- [2] M.J. Berger and P. Collela, *Local adaptive mesh refinement for shock hydrodynamics*, J. Comput. Phys. **82**, 62–84 (1989).
- [3] C. de Boor, *Good approximation by splines with variable knots II*, Springer Lecture Notes Series **363**, Springer-Verlag (1973).
- [4] C. Canuto, *High-order methods for PDEs: recent advances and new perspectives*, in: *6th International Congress on Industrial and Applied Mathematics*, pp. 57–87, European Mathematical Society (2009).
- [5] E. Coutsias, T. Hagstrom, J.S. Hesthaven and D. Torres, *Integration preconditioners for differential operators in spectral  $\tau$ -methods*, in: *Proceedings of the Third International Conference on Spectral and High Order Methods*, A. Ilin and R. Scott (Eds), pp. 21–38, Houston Journal of Mathematics (1996).
- [6] Z.J. Tan, T. Tang and Z.R. Zhang, *A simple moving mesh method for one- and two-dimensional phase-field equations*, J. Comput. Appl. Math. (To appear).
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