



## Title of the paper on differential equations

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**Abstract.** Here comes the abstract of your paper. The abstract should not exceed 200 words and should not contain citations. Please try to minimize the usage of formulae and do not use your own macros here. In general, your abstract should be self-contained.

**Keywords:** differential equations, difference equations.

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## 1 Introduction

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## 2 Examples

In this section, we show examples how theorems, definitions, lists and formulae should be formatted.

### 2.1 Sample formulae

To write systems of equations which should be numbered together, as well as multiline formulae, we suggest to use the `split` environment:

$$\begin{aligned} x' &= x(\alpha - \beta y), \\ y' &= -y(\gamma - \delta x). \end{aligned} \tag{2.1}$$

$$\begin{aligned} \dot{y}(t) &= ay(t) + bf(y(t - \gamma_0\tau)) \\ &> ay(t) - bf(y(t - \gamma_0\tau)) \\ &\quad + bf(y(t - \gamma_0\tau)) \\ &= ay(t). \end{aligned} \tag{2.2}$$

To write a multiline formula with all lines numbered we suggest to use the `{align}` environment. The `{eqnarray}` environment is not recommended.

$$\dot{y}(t) = ay(t) + bf(y(t)), \tag{2.3}$$

$$\dot{y}(t) = ay(t) - bf(y(t)), \tag{2.4}$$

$$y(0) = y_0. \tag{2.5}$$

Equation (2.6) is just an example of a piecewise defined function.

$$|x| = \begin{cases} x, & x \geq 0, \\ -x, & x < 0. \end{cases} \tag{2.6}$$

To refer to a theorem (definition, section, etc.) labelled as above, please use the `\ref` command. For referring to equations the `\eqref` command is recommended. Here we refer to equation (2.2) and Theorem 2.2. To cite an entry from the references, please use the `\cite` command as presented here by citing [3]. You can also cite a given part (e.g. a chapter, a theorem) from a reference by writing [4, Theorem 4.1]. If more than one reference is cited simultaneously, then they should be arranged in an increasing order as [1, 2, 5, 6, 7].

For equations which do not need numbering, the environments `{equation*}` and `{align*}` should be used.

$$\begin{aligned} \alpha x(t) + \beta y(t) &= \int_{t_0}^t f(x(s), y(s - T_\epsilon)) ds - \int_{t_0}^t g(x(s - \tau), y(s)) ds \\ &\quad + \int_{t_0}^t h(x(s - \tau), y(s - \tau)) ds. \end{aligned}$$

For such equations, of course, no labels should be defined and they cannot be referred to.

This is an example of the *incorrect* use of brackets:

$$\left(\frac{a}{b}\right)^2 \left[ \int f(x) dx + \int g(x) dx \right],$$

$$\left(\frac{a}{b}\right)^2 \left[ \int f(x) dx + \int g(x) dx \right].$$

For names of functions, resp. other roman (`\rm`) math words used in mathematical formulae, please use the corresponding L<sup>A</sup>T<sub>E</sub>X command, e.g. `\cos`, `\log`, `\limsup`. If such a command does not exist, please use the `\operatorname` command (e.g. `\operatorname{diam}`).

Figure 2.1: Sample figure.

For writing theorems (and lemmas, corollaries, remarks, etc.), please use the adequate environment `{theorem}`, `{lemma}`, etc. These are all numbered in the same sequence. If needed, further environments may be specified by the `\newtheorem` command.

**Theorem 2.2.** *Under some conditions on  $f$ , the initial value problem (2.3)–(2.5) has a unique solution.*

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**Remark 2.4.** We remark that Definition 2.1 is correct.

## 2.3 Sample lists

To create a list, please use the environments `{itemize}` and `{enumerate}`. The first one creates a list without numbering, the second one creates a list with the specified numbering.

Here is an example for using the `{itemize}` environment.

- First item.
- Second item.
- Third item.

Here is an example for using the `{enumerate}` environment. The numbering style can be changed from the default (1., 2., ...) by specifying the requested numbering style.

- (i) First item.
- (ii) Second item.

## Acknowledgements

We would like to thank you for following the above instructions. This will definitely speed up the publication process of your paper.

## References

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