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.

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1   Introduction

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respectively – especially in case the cited document has no DOI. For further details and examples see the list of references and the LaTeXcomments at the References section of this guide.

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 {aligned} or 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.

$$
\dot{y}(t) = ay(t) + bf(y(t)), \tag{2.3}
$$
$$
\ddot{y}(t) = ay(t) - bf(y(t)), \tag{2.4}
$$
$$
y(0) = y_0. \tag{2.5}
$$

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.

$$
\alpha x(t) + \beta y(t) = \int_{t_0}^{t} f(x(s), y(s - T_\varepsilon)) \, ds - \int_{t_0}^{t} g(x(s - \tau), y(s)) \, ds \\
+ \int_{t_0}^{t} h(x(s - \tau), y(s - \tau)) \, ds.
$$

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

Please take care to use the appropriate size for brackets. This is possible by using the commands \big(, \big), \Big\{, \Big\}, ..., resp. the commands \left[, \right], etc.

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

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

which should be written e.g. as

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

Please do not put large formulae in-line with the text rather than displaying them. This is especially important for formulae whose vertical size exceeds normal text hight as they create different line spacing.

For names of functions, resp. other roman (\rm) math words used in mathematical formulae, please use the corresponding LATEX command, e.g. cos, log, lim sup. If such a command does not exist, please use the \operatorname command (e.g. diam).

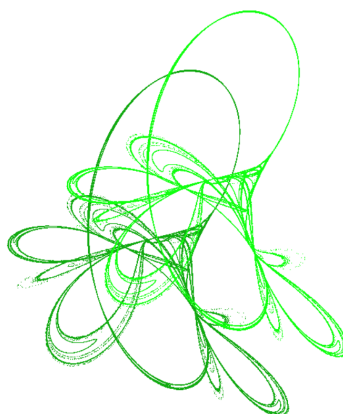Please include figures as shown in the example below for Figure 2.1.

Figure 2.1: Sample figure.

2.2   A sample theorem

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.

Definition 2.1. Here you can define something.

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

Proof. Here is the proof of the theorem. □

Corollary 2.3. *This is a corollary of Theorem 2.2.*

Proof. Here is the proof of the corollary. □

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

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