

# A TEMPLATE FOR ARTICLES IN ANNALES MATHEMATICAE SILESIANAE

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**Abstract.** This file is a template for preparing a manuscript when submitting to *Annales Mathematicae Silesianae*. It uses the standard class `amsart` provided by American Mathematical Society.

## 1. Introduction

The class `amsilart` uses the  $\text{\LaTeX}$ `amsart` document class that automatically preloads two essential packages for mathematical typesetting:

- (1) `amsmath`: Enhances math formatting, providing multi-line equations and enhanced equation numbering.
- (2) `amsthm`: Adds environments and commands for typesetting mathematical theorems and proofs.

Other popular packages are loaded by default by the class `amsilart`, such as

- (i) `amssymb`: For additional symbols. Note that `amssymb` will automatically load `amsfonts`.
- (ii) `graphicx`: For including graphics.
- (iii) `hyperref`: For including hyperlinks.
- (iv) `fontenc` with option `T1`: For the support of most widespread European languages, in particular for support of accents.

While these are pre-loaded by default, you will still need to manually load other packages in your preamble, such as `tikz` for drawing diagrams.

Do not load any packages in the preamble that are not needed. Doing so with extra options can sometimes conflict with the class defaults.

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*Received:* *Accepted:*

(2020) Mathematics Subject Classification: XXXX, YYYY.

*Key words and phrases:* aaaa, bbbb, cccc.

This research was partly supported by NCN grant no. XXXX.

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## 2. Main results

The size of the fonts and the width and the height of the text are predefined. Note that the vertical spacing in the final printed version of your article might be different than in the template.

### 2.1. Maths and L<sup>A</sup>T<sub>E</sub>X

Authors are encouraged to use standard L<sup>A</sup>T<sub>E</sub>X and AMS commands when preparing manuscripts with the `amssilart` class.

Displayed equations should be written using the environments provided by the `amsmath` package, such as `equation`, `align`, or `gather`, rather than manual spacing. For example,

$$(2.1) \quad f(x) = x^2 + 1$$

or

$$(2.2) \quad a^2 + b^2 = c^2,$$

$$(2.3) \quad e^{i\pi} + 1 = 0.$$

Refer to them by using `\eqref`. For example:

Euler's identity given in (2.3) is a specific case of Euler's Formula, which states that for any real number  $x$ ,

$$e^{ix} = \cos(x) + i \sin(x).$$

Standard mathematical symbols and fonts should be produced using AMS commands such as `\mathbb`, `\mathcal`, and `\mathfrak`. For example, the real numbers are denoted by  $\mathbb{R}$ , and a sigma-algebra by  $\mathcal{F}$ .

Notation should be introduced clearly and used consistently throughout the paper. Frequently used symbols may be defined as macros in the preamble to improve readability and maintainability.

### 2.2. Fundamental environments

Theorems, definitions, and related statements must be placed in predefined theorem environments, with proofs written in the `proof` environment. Manual formatting should be avoided in favor of semantic commands and environments.

**DEFINITION 2.1.** A set  $B$  is said to be *non-trivial* if  $B \neq \emptyset$ .

**THEOREM 2.2.** *If (...), then the following conditions are equivalent:*  
(i) *first item,*

- (ii) *second item,*
- (iii) *third item.*

PROOF. To equivalence (i)  $\iff$  (ii) follows from [1, Theorem 5]. Use Definition 2.1 to get the remaining one.  $\square$

REMARK 2.3 ([1, Theorem 1]). Please note that the text in theorems, lemmas and corollaries is written in italics. Remarks, definitions and examples are not written in italics. In definitions you can use `\emph` to highlight the defined notion.

### 2.3. Graphics and tables

If you are including external graphics please prepare them as pdf or png files. If you need to include a colorful picture you can use jpeg.

Diagrams can be created directly in  $\LaTeX$  using the TikZ package. TikZ allows for precise control of diagrams, including commutative diagrams, graphs, and geometric figures. Additional libraries (such as `cd` for commutative diagrams) can be loaded using `\usetikzlibrary`.

Importantly, graphics should be placed inside the `figure` environment to allow proper positioning, numbering, and referencing. Each figure should be followed by a caption describing its contents:

```
\begin{figure}[htb]
\centering
%Here goes the graphics
\caption{A graph of the function in \eqref{fun1}}\label{fig1}
\end{figure}
```

Each figure should be referred to in the main text before it appears in the text; use at least `see Figure~\ref{fig1}`.

If you are including tables you should use the `table` environment and place the caption above the table. Each table should be referred to in the text; use the name `Table` and refer to its number by using `\ref`.

### 2.4. Citation and bibliography style

Type your references inside the standard `thebibliography` environment that should be placed at the end of the tex file. Alternatively, you can use BibTeX and you can create a file (e.g., `references.bib`) that contains your bibliography entries in BibTeX format. Then add at the end of your document:

```
\bibliographystyle{amsilbibstyle}
\bibliography{references}
```

and run BibTeX. The file `amsilbibstyle.bst` goes together with `amsilart.cls`. Note that the class `amsilart` uses a smaller font for bibliographies (footnote-size) by default.

The references should be given in alphabetical order. Each reference should be cited in the main text at least one time by using `\cite`. An example of a reference to an article is given in [1], to a book in [2], to an article in a proceedings in [3] and to an arXiv preprint in [4].

**Acknowledgements.** Authors should add here any acknowledgements except for the type and the number of a grant that should be given at the bottom of the first page, if there is one.

## References

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- [3] X. Author1, Y. Author2, and Z.W. Author3, *The title of the article*, in: Editors Names (Eds.), *Title of the Book or Proceedings*, Publisher, Address, 1985, pp. 15–20.
- [4] J. Kowalski and J. Nowak, *A ground-breaking achievement*, arXiv preprint 2025. Available at arXiv: number.

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