

PAPER TITLE

*Sub-titles are not captured in Xplore and should NOT be used

1st Given Name Surname

dept. name of organization (of Aff.)

name of organization (of Aff.)

City, Country

email address or ORCID

2nd Given Name Surname

dept. name of organization (of Aff.)

name of organization (of Aff.)

City, Country

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3rd Given Name Surname

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name of organization (of Aff.)

City, Country

email address or ORCID

4th Given Name Surname

dept. name of organization (of Aff.)

name of organization (of Aff.)

City, Country

email address or ORCID

5th Given Name Surname

dept. name of organization (of Aff.)

name of organization (of Aff.)

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6th Given Name Surname

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Abstract—All manuscripts must be in English, following a two-column format. The abstract should appear at the top of the left-hand column of text, about 0.5 inch (12 mm) below the title area and no more than 3.125 inches (80 mm) in length. Leave a 0.5 inch (12 mm) space between the end of the abstract and the beginning of the main text. The abstract should contain about 100 to 150 words, and should be identical to the abstract text submitted electronically along with the paper cover sheet. All illustrations should be clear when printed on a black-only printer. Color may be used.

***CRITICAL: Do Not Use Symbols, Special Characters, Footnotes, or Math in Paper Title or Abstract.**

Index Terms—formatting, editing, styling, insert relevant keywords

I. INTRODUCTION

The LaTeX environment files specify suitable margins, page layout, text and a bibliography style. Figures and graphs must appear within the designated margins. Caption and number each illustration or table. All standard paper components have been specified in this template for three main reasons: (1) ease of use when formatting individual papers, (2) automatic compliance to electronic requirements that facilitate the concurrent or later production of electronic products, and (3) conformity of style throughout all conference proceedings. Font type of Times-Roman is encouraged. Use a ten-point font.

II. EASE OF USE

A. Maintaining the Integrity of the Specifications

The IEEEtran class file is used to format your paper and style the text. All margins, column widths, line spaces, and text fonts are prescribed; please do not alter them. You may note peculiarities. For example, the head margin measures proportionately more than is customary. This measurement and others are deliberate, using specifications that anticipate your paper as one part of the entire proceedings, and not as an independent document. Please do not revise any of the current designations.

Identify applicable funding agency here. If none, delete this.

B. Page Title, Fonts, Headings

The paper title should appear at the top edge of the page, centered, completely capitalized, in boldface type. The authors' name(s) and affiliation(s) appear below the title in capital and lower case letters. Papers with multiple authors and affiliations may require two or more lines for this information.

To achieve the best rendering in the proceedings, we strongly encourage you to use a Times-Roman font. This will give the proceedings a more uniform look. Use a font that is no smaller than ten point type throughout the paper, including figure captions. In ten point type font, capital letters are 2 mm high. If you use the smallest point size, there should be no more than 3.2 lines/cm (8 lines/inch) vertically. This is a minimum spacing; 2.75 lines/cm (7 lines/inch) will make the paper much more readable. Larger type sizes require correspondingly larger vertical spacing. Please do not double-space your paper.

Major headings (e.g., 1. INTRO) should appear in all capital letters, centered in the column. Use a period (.) after the heading number, not a colon. Subheadings should appear in upper-lower case, in italics. They should start at the left margin on a separate line. Sub-subheadings are firmly discouraged. In the rare case you must use them, they should appear in lower case (first word capitalized) and start at the left margin on a separate line, with paragraph text beginning on the following line. They should be in italics and the numbering should include numbers following the letter of the corresponding subheading, e.g., C.1. .

All paragraph in each section will be indented.

III. PREPARE YOUR PAPER BEFORE STYLING

Before you begin to format your paper, first write and save the content as a separate text file. Complete all content and organizational editing before formatting. Please note sections III-A–III-E below for more information on proofreading, spelling and grammar.

Keep your text and graphic files separate until after the text has been formatted and styled. Do not number text heads— \LaTeX will do that for you.

A. Abbreviations and Acronyms

Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, ac, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

B. Units

- Use either SI (MKS) or CGS as primary units. SI units are encouraged, and this template loads the `siunitx` package that helps you type them. English units may be used as secondary units (in parentheses). An exception would be the use of English units as identifiers in trade, such as “3.5-inch disk drive”.
- Avoid combining SI and CGS units, such as current in amperes and magnetic field in oersteds. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity that you use in an equation.
- Do not mix complete spellings and abbreviations of units: “Wb m⁻²” or “webers per square meter”, not “webers/m²”. Spell out units when they appear in text: “... a few henries”, not “... a few H”.
- Use a zero before decimal points: “0.25”, not “.25”. Use “cm³”, not “cc”).

C. Equations

Number equations consecutively. To make your equations more compact, you may use the solidus (/), the exp function, or appropriate exponents. Italicize Roman symbols for quantities and variables, but not Greek symbols. Use a long dash rather than a hyphen for a minus sign. Punctuate equations with commas or periods when they are part of a sentence, as in:

$$a + b = \gamma. \quad (1)$$

Be sure that the symbols in your equation have been defined before or immediately following the equation. Use “(1)”, not “Eq. (1)” or “equation (1)”, except at the beginning of a sentence: “Equation (1) is ...”

D. \LaTeX -Specific Advice

Please use “soft” (e.g., `\eqref{Eq}`) cross references instead of “hard” references (e.g., (1)). That will make it possible to combine sections, add equations, or change the order of figures or citations without having to go through the file line by line.

Please don’t use the `{eqnarray}` equation environment. Use `{align}` or `{IEEEeqnarray}` instead. The `{eqnarray}` environment leaves unsightly spaces around relation symbols.

Please note that the `{subequations}` environment in \LaTeX will increment the main equation counter even when

there are no equation numbers displayed. If you forget that, you might write an article in which the equation numbers skip from (17) to (20), causing the copy editors to wonder if you’ve discovered a new method of counting.

\BIBTeX does not work by magic. It doesn’t get the bibliographic data from thin air but from `.bib` files. Good use of \BIBTeX is strongly encouraged.

\LaTeX can’t read your mind. If you assign the same label to a subsubsection and a table, you might find that Table I has been cross referenced as Table IV-B3.

\LaTeX does not have precognitive abilities. If you put a `\label` command before the command that updates the counter it’s supposed to be using, the label will pick up the last counter to be cross referenced instead. In particular, a `\label` command should not go before the caption of a figure or a table.

Do not use `\nonumber` inside the `{array}` environment. It will not stop equation numbers inside `{array}` (there won’t be any anyway) and it might stop a wanted equation number in the surrounding equation.

E. Some Common Mistakes

- The word “data” is plural, not singular.
- The subscript for the permeability of vacuum μ_0 , and other common scientific constants, is zero with subscript formatting, not a lowercase letter “o”.
- In American English, commas, semicolons, periods, question and exclamation marks are located within quotation marks only when a complete thought or name is cited, such as a title or full quotation. When quotation marks are used, instead of a bold or italic typeface, to highlight a word or phrase, punctuation should appear outside of the quotation marks. A parenthetical phrase or statement at the end of a sentence is punctuated outside of the closing parenthesis (like this). (A parenthetical sentence is punctuated within the parentheses.)
- A graph within a graph is an “inset”, not an “insert”. The word alternatively is preferred to the word “alternately” (unless you really mean something that alternates).
- Do not use the word “essentially” to mean “approximately” or “effectively”.
- Be aware of the different meanings of the homophones “affect” and “effect”, “complement” and “compliment”, “discreet” and “discrete”, “principal” and “principle”.
- Do not confuse “imply” and “infer”.
- The prefix “non” is not a word; it should be joined to the word it modifies, usually without a hyphen.
- There is no period after the “et” in the Latin abbreviation “et al.”.
- The abbreviation “i.e.” means “that is”, and the abbreviation “e.g.” means “for example”.

Excellent references for science writers are [4], [5].

F. Authors and Affiliations

The class file is designed for, but not limited to, six authors. A minimum of one author is required for all conference

articles. Author names should be listed starting from left to right and then moving down to the next line. This is the author sequence that will be used in future citations and by indexing services. Names should not be listed in columns nor group by affiliation. Please keep your affiliations as succinct as possible, while still providing the correct and complete nomenclature for your organization(s).

G. Identify the Headings

Headings, or heads, are organizational devices that guide the reader through your paper. There are two types: component heads and text heads.

Component heads identify the different components of your paper and are not topically subordinate to each other. Examples include Acknowledgments and References and, for these, the correct style to use is “Heading 5”. Use “figure caption” for your Figure captions, and “table head” for your table title.

Text heads organize the topics on a relational, hierarchical basis. For example, the paper title is the primary text head because all subsequent material relates and elaborates on this one topic. If there are two or more sub-topics, the next level head (uppercase Roman numerals) should be used and, conversely, if there are not at least two sub-topics, then no subheads should be introduced.

H. Figures and Tables

a) *Positioning Figures and Tables:* Place figures and tables at the top and bottom of columns. Avoid placing them in the middle of columns. Large figures and tables may span across both columns. Figure captions should be below the figures; table heads should appear above the tables. Insert figures and tables after they are cited in the text. Use the abbreviation “Fig. 1”, even at the beginning of a sentence.

Table I shows the use of the `booktabs` style. It is beautiful. Use it!

TABLE I
TABLE TYPE STYLES

	$u_{\text{tol}} \approx 10^{-4}$			No tolerance		
	<i>mv</i>	Rel. err	Time	<i>mv</i>	Rel. err	Time
A	11034	1.3×10^{-7}	3.9	15846	2.7×10^{-11}	5.6
B	21952	1.3×10^{-7}	6.2	31516	2.7×10^{-11}	8.8
C	15883	5.2×10^{-8}	7.1	32023	1.1×10^{-11}	14.0
D	11180	8.0×10^{-9}	4.3	17348	1.5×10^{-11}	6.6

Figure Labels: Use 8 point Times New Roman for Figure labels. Use words rather than symbols or abbreviations when writing Figure axis labels to avoid confusing the reader. As an example, write the quantity “Magnetization”, or “Magnetization, M”, not just “M”. If including units in the label, present them within parentheses. Do not label axes only with units. In the example, write “Magnetization (A/m)” or “Magnetization {A[m(1)]}”, not just “A/m”. Do not label axes with a ratio of quantities and units. For example, write “Temperature (K)”, not “Temperature/K”.



Fig. 1. Example of a figure caption.

ACKNOWLEDGMENT

The preferred spelling of the word “acknowledgment” in America is without an “e” after the “g”. Avoid the stilted expression “one of us (R. B. G.) thanks ...”. Instead, try “R. B. G. thanks...”. Put sponsor acknowledgments in the unnumbered footnote on the first page.

REFERENCES

Please number citations consecutively within brackets [1]. The sentence punctuation follows the bracket [2]. Refer simply to the reference number, as in [3]—do not use “Ref. [3]” or “reference [3]” except at the beginning of a sentence: “Reference [3] was the first...”

Number footnotes separately in superscripts. Place the actual footnote at the bottom of the column in which it was cited. Do not put footnotes in the abstract or reference list. Use letters for table footnotes.

Thank you for following until here the conference editing requirements! As a bonus, take a look at the excellent best-practice suggestions included in this year’s IGARSS LaTeX template: [LATEX TEMPLATE FOR IGARSS 2025](#).

REFERENCES

- [1] M. P. Deisenroth, A. A. Faisal, and C. S. Ong, *Mathematics for Machine Learning*. Cambridge University Press, 2021. [Online]. Available: <https://mml-book.com>
- [2] R. Golden, *Statistical Machine Learning: a unified framework*. Boca Raton, FL: CRC Press, Taylor & Francis Group, 2020.
- [3] M. Kubat, *An Introduction to Machine Learning*, 2nd ed. Springer International Publishing, 2017.
- [4] S. Oliveira and D. Stewart, *Writing Scientific Software: a guide to good style*. Cambridge, 2006.
- [5] J. Zobel, *Writing for Computer Science*, 2nd ed. Springer, 2005.

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