

Preparation of Papers for AIAA Technical Journals

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These instructions give you guidelines for preparing papers for AIAA Technical Journals using L^AT_EX. If you previously prepared an AIAA Conference Paper using the Meetings Papers Template, you may submit using the Meetings Papers Template so long as the text is double-spaced. Carefully follow the journal paper submission process in Sec. II of this document. Keep in mind that the electronic file you submit will be formatted further at AIAA. This first paragraph is formatted in the abstract style. Abstracts are required for regular, full-length papers and express articles. Be sure to define all symbols used in the abstract, and do not cite references in this section. The footnote on the first page should list the Job Title and AIAA Member Grade (if applicable) for each author.

Nomenclature

(Nomenclature entries should have the units identified)

- A = amplitude of oscillation
- a = cylinder diameter
- C_p = pressure coefficient
- C_x = force coefficient in the x direction
- C_y = force coefficient in the y direction
- c = chord
- dt = time step
- F_x = X component of the resultant pressure force acting on the vehicle
- F_y = Y component of the resultant pressure force acting on the vehicle

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f, g = generic functions
 h = height
 i = time index during navigation
 j = waypoint index
 K = trailing-edge (TE) nondimensional angular deflection rate
 Θ = boundary-layer momentum thickness
 ρ = density

Subscripts

cg = center of gravity
 G = generator body
iso = waypoint index

I. Introduction

THIS document is a \LaTeX template for preparation of papers for AIAA Technical Journals. If you are reading a hard-copy or .pdf version of this document, download the electronic file, new-aiaa.cls, and use it to prepare your manuscript.

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All manuscripts are to be submitted to ScholarOne online at <https://mc.manuscriptcentral.com/aiaa>. Select either “Log In” if you have an existing account or “Create an Account” if this is your first time submitting to one of AIAA’s journals. If it’s the latter, please follow the instructions ScholarOne provides. Once you have logged into ScholarOne, select “Author Center” then scroll down. Under “Author Resources”, select the star beside “Click here to submit a new manuscript”. The site will take you step-by-step through the submission process. Once you submit your manuscript, you will receive an email containing your manuscript ID number as well as a link to view the status of your manuscript.

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III. General Guidelines

The following section outlines general (nonformatting) guidelines to follow. These guidelines are applicable to all authors and include information on the policies and practices relevant to the publication of your manuscript.

A. Publication by AIAA

Your manuscript cannot be published by AIAA if:

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- 3) The work has been published or is currently under consideration for publication or presentation elsewhere.

(Exception: Papers presented at AIAA conferences may be submitted to AIAA journals for possible publication.)

You will be asked to provide the publication or presentation history of your paper (or any similar paper) if it has *ever* been submitted for publication or presentation previously to an AIAA journal or conference. Please include the following, if applicable: the full name of the publication or conference, the entire paper number, dates the conference took place, review history, final disposition of manuscript, etc.

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IV. Instructions

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Use the Print option under the File tab to view Page Layout and see the most accurate representation of how your final paper will appear. Once formatting is complete, be sure to double space all sections of your manuscript.

A. Document Text

The default font for the Template is Times New Roman, 10-point size. The first line of every paragraph should be indented, and all lines should be double-spaced. Default margins are 1 in. on all sides. In the electronic version of this template, all margins and other formatting are preset. There should be no additional (blank) lines between paragraphs.

NOTE: If you are using the Template to format your manuscript, the required spacing and formatting will be applied automatically.

B. Headings

Format the title of your paper in bold, 18-point type, with capital and lower-case letters, and center it at the top of the page. The names of the authors, business or academic affiliation, city, and state/province follow on separate lines below the title. The names of authors with the same affiliation can be listed on the same line above their collective affiliation information. Author names are centered, and affiliations are centered and in italic type. The affiliation line for each author includes that author's city, state, and zip/postal code (or city, province, zip/postal code and country, as appropriate). The first footnote (bottom of first page) contains the job title and department name, and AIAA member grade for each author. Author email addresses may be included also.

Major headings in the template ("sections" in the \LaTeX template commands) are bold 11-point font and centered. Please omit section numbers before all headings unless you refer frequently to different sections. Use Roman numerals for major headings if they must be numbered.

Subheadings ("subsections" in the \LaTeX template commands) are bold, flush left, and either unnumbered or identified with capital letters if necessary for cross-referencing sections within the paper. There must be at least 2 of all subheadings and sub-subheadings. If there is only a single subheading or sub-subheading, please italicize the title of the subheadings, followed by a period, and run it into the text paragraph.

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C. Abstract

An abstract appears at the beginning of Full-Length Papers, Regular Articles, and Express Articles. (Survey and Design Forum Papers, History of Key Technologies Papers, invited lectures, and Technical/Engineering Notes do not include abstracts.) The abstract is one paragraph (not an introduction) and complete in itself (no reference numbers). It should indicate subjects dealt with in the paper and state the objectives of the investigation. Newly observed facts and conclusions of the experiment or argument discussed in the paper must be stated in summary form; readers should not have to read the paper to understand the abstract. Format the abstract bold, indented 3 picas (1/2 in.) on each side, and separated from the rest of the document by two blank lines.

D. Nomenclature

Papers with many symbols may benefit from a nomenclature list that defines all symbols with units, inserted between the abstract and the introduction. If one is used, it must contain all the symbology used in the manuscript, and the definitions should not be repeated in the text. In all cases, identify the symbols used if they are not widely recognized in the profession. Define acronyms in the text, not in the nomenclature.

E. Biographies

Survey Papers and some Full-Length Papers include author biographies. These biographies are one paragraph each and should use the abstract formatting style.

F. Footnotes and References

Footnotes, where they appear, should be placed above the 1" margin at the bottom of the page. Numbered footnotes are acceptable, but superscript symbols are the preferred AIAA style, in the following sequence, *, †, ‡, §, ¶, **, ††, ‡‡, §§, etc. Footnotes display author job titles and departments on the first page of each manuscript and use the symbols *, †, ‡, §, ¶, **, ††, etc. **Designating one or more authors as a “corresponding author” is appropriate in the footnotes, with contact email addresses included.** AIAA membership status also may be included when applicable. The use of footnotes elsewhere in the manuscript is discouraged.

List and number all references at the end of the paper. Corresponding bracketed numbers are used to cite references in the text [1], including citations that are an integral part of the sentence (e.g., “It is shown in [2] that. . .”) or follow a mathematical expression: “ $A^2 + B = C$ (Ref. [3]).” For multiple citations, separate reference numbers with commas [4, 5], or use a dash to show a range [6–9]. Reference citations in the text should be in numerical order.

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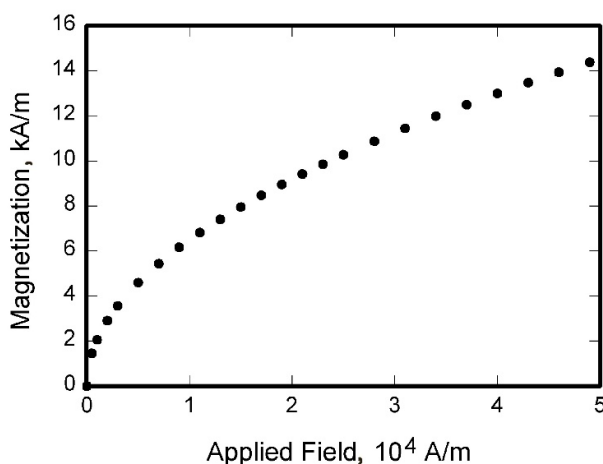
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Line drawings must be clear and sharp. Make sure that all lines and graph points are dark and distinct and that

Table 1 Transitions selected for thermometry

Line	Transition		J''	Frequency, cm^{-1}	FJ , cm^{-1}	$G\nu$, cm^{-1}
	ν''					
a	0	P_{12}	2.5	44069.416	73.58	948.66
b	1	R_2	2.5	42229.348	73.41	2824.76
c	2	R_{21}	805	40562.179	71.37	4672.68
d	0	R_2	23.5	42516.527	1045.85	948.76

**Fig. 1** Magnetization as a function of applied fields.

lettering is legible. Keep the lettering size and style uniform both within each figure and throughout all of your illustrations, no smaller than 8- to 10-point type for artwork that is sized to fit the column width (3 ¼ in.) or the full-page width (7 in.). Place figure captions below each figure, and limit main caption length to 20–25 words. If your figure has multiple parts, include the labels “a),” “b),” etc., below and to the left of each part, above the figure caption. Please verify that the figures and tables you mention in the text actually exist. When citing a figure in the text, use the abbreviation “Fig.” except at the beginning of a sentence. Do not abbreviate “Table.” Number each different type of illustration (i.e., figures and tables) sequentially with relation to other illustrations of the same type.

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All tables are numbered consecutively and must be cited in the text; give each table a definitive title. Be sure that you have a minimum of two columns (with headings) and two rows to constitute a proper table; otherwise reformat as a displayed list or incorporate the data into the text. Plan tables to fit the column width (3 ¼ in.) or the journal page width (7 in.). Position a double rule at the top and bottom of each table and single rule under the column headings; do not use shading, border lines, or vertical rules between table columns. Position each table in the text close to where it is cited

H. Equations

Equations are numbered consecutively, with equation numbers in parentheses flush right, as in Eq. (1). Insert a blank line on either side of the equation. To insert an equation into the L^AT_EX document, use the `\begin{equation} . . . \end{equation}` command environment.

A sample equation is included here, formatted using the preceding instructions:

$$\int_0^{r_2} F(r, \varphi) dr d\varphi = [\sigma r_2 / (2\mu_0)] \int_0^\infty \exp(-\lambda|z_j - z_i|) \lambda^{-1} J_1(\lambda r_2) J_0(\lambda r_i) \lambda d\lambda \quad (1)$$

Be sure that symbols in your equation are defined in the Nomenclature or immediately following the equation. Also define abbreviations and acronyms the first time they are used in the main text. (Very common abbreviations such as AIAA and NASA, do not have to be defined.)

I. General Grammar and Preferred Usage

Use only one space after periods or colons. Hyphenate complex modifiers: “zero-field-cooled magnetization.” Insert a zero before decimal points: “0.25,” not “.25.” Use “cm²” not “cc.”

A parenthetical statement at the end of a sentence is punctuated outside of the closing parenthesis (like this). (A parenthetical sentence is punctuated within parenthesis.) Use American, not English, spellings (e.g., “color,” not “colour”). The serial comma is preferred: “A, B, and C” instead of “A, B and C.”

Be aware of the different meanings of the homophones “affect” (usually a verb) and “effect” (usually a noun), “complement” and “compliment,” “discreet” and “discrete,” “principal” (e.g., “principal investigator”) and “principle” (e.g., “principle of measurement”). Do not confuse “imply” and “infer.”

V. Conclusion

Although a conclusion may review the main points of the paper, it must not replicate the abstract. A conclusion might elaborate on the importance of the work or suggest applications and extensions. Do not cite references in the conclusion. Note that the conclusion section is the last section of the paper to be numbered. The appendix (if present), funding information, other acknowledgments, and references are listed without numbers.

Appendix

An Appendix, if needed, appears **before** research funding information and other acknowledgments.

Funding Sources

Sponsorship information and acknowledgments of financial support should be included here. **Authors are responsible for accurately reporting funding data relevant to their research.** Please confirm that you have correctly

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Acknowledgments

An Acknowledgments section, if used, **immediately precedes** the References. Individuals other than the authors who contributed to the underlying research may be acknowledged in this section. The use of special facilities and other resources also may be acknowledged. If AI is used in the writing process or figure construction as permitted, authors must include a brief description of AI use in the Acknowledgments section of the manuscript.

References

- [1] Vatistas, G. H., Lin, S., and Kwok, C. K., "Reverse Flow Radius in Vortex Chambers," *AIAA Journal*, Vol. 24, No. 11, 1986, pp. 1872, 1873. <https://doi.org/10.2514/3.13046>.
- [2] Dornheim, M. A., "Planetary Flight Surge Faces Budget Realities," *Aviation Week & Space Technology*, Vol. 145, No. 24, 1996, pp. 44–46.
- [3] Terster, W., "NASA Considers Switch to Delta 2," *Space News*, Vol. 8, No. 2, 1997, pp. 13–19.
- [4] Peyret, R., and Taylor, T. D., *Computational Methods for Fluid Flow*, 2nd ed., Springer-Verlag, New York, 1983, Chaps. 7, 14.
- [5] Oates, G. C. (ed.), *Aerothermodynamics of Gas Turbine and Rocket Propulsion*, AIAA Education Series, AIAA, New York, 1984, pp. 19, 136.
- [6] Volpe, R., "Techniques for Collision Prevention, Impact Stability, and Force Control by Space Manipulators," *Teleoperation and Robotics in Space*, edited by S. B. Skaar and C. F. Ruoff, Progress in Astronautics and Aeronautics, AIAA, Washington, DC, 1994, pp. 175–212.
- [7] Thompson, C. M., "Spacecraft Thermal Control, Design, and Operation," *AIAA Guidance, Navigation, and Control Conference*, CP849, Vol. 1, AIAA, Washington, DC, 1989, pp. 103–115.
- [8] Chi, Y. (ed.), *Fluid Mechanics Proceedings*, NASA SP-255, 1993.
- [9] Brandis, A. M., Johnston, C. O., and Cruden, B. A., "Nonequilibrium Radiation for Earth Entry," *AIAA Paper 2016–3690*, June 2016. <https://doi.org/10.2514/6.2016-3690>.