

AIAA Manuscript Preparation Kit

This kit is to serve as a partner document to the AIAA Papers Template, and includes a summary of formatting instructions and all forms necessary to complete your manuscript and submit it for publication. For complete formatting instructions and guidelines, please refer to the AIAA Paper Template, available in several formats (including MS Word and LaTeX) from the AIAA web site. Please read all information carefully, as several procedures have changed.

I. Publication Instructions

A. Publication Standards

The formatting standard for AIAA manuscripts has changed. As the preferred medium for technical papers is increasingly electronic, the new layout for AIAA papers has been redesigned with electronic publication in mind. This kit, along with its partner document, the AIAA Papers Template, has been rewritten and is presented in accordance with the new formatting standard.

Please keep in mind, your manuscript *cannot* be published by AIAA if:

- 1) It has been published previously, or:
- 2) The appropriate copyright assignment has not been made.

B. Paper Review and Visa Considerations

It is the responsibility of the author to obtain any required government or company reviews for their papers in advance of publication. Technology transfer guidelines have extended considerably the time required for review of abstracts and completed papers by U.S. government agencies. Internal (company) plus external (government) reviews can consume 16 weeks or more. Government review, if required, is the responsibility of the author. Authors should determine the extent of approval necessary early in the paper preparation process to preclude paper withdrawals and late paper submittal.

If you plan to attend an AIAA technical conference or professional development course held in the United States and you require a visa for travel, it is incumbent upon you to apply for a visa with the U.S. embassy (consular division) or consulate with ample time for processing. To avoid bureaucratic problems, AIAA strongly suggests that you submit your formal application to U.S. authorities a minimum of 120 days in advance of the date of anticipated travel.

Prospective conference and course attendees requiring a visa to travel to the United States should first contact AIAA to request an official letter of invitation. This letter and a copy of the conference call for papers should be presented along with the required documentation to the U.S. consular officials as part of the formal application process. AIAA cannot directly intervene with the U.S. Department of State, consular offices, or embassies on behalf of individuals applying for visas. A letter of invitation can be requested at <https://www.aiaa.org/Secondary.aspx?id=6258> or you may contact:

ATTN: Customer Service
American Institute of Aeronautics and Astronautics
1801 Alexander Bell Drive, Suite 500
Reston, VA 20191-4344
Phone: 1-703-264-7500
Fax: 1-703-264-7657

C. Control ID Number vs. Paper Number

Your paper was assigned a control ID number at the time you submitted your abstract. This number as well as the name of your conference is required when contacting AIAA support regarding your submission.

The control ID number is not the final AIAA paper number. Your final paper number, which appears in the format "AIAA-YEAR-NNNN," will be assigned for the published proceedings, and **will be stamped automatically in the top right corner of your paper at the time of processing.**

D. Copyright

Before AIAA can print or publish any paper, the appropriate copyright assignment must be made via the conference ScholarOne Abstracts submission web site (see section II, Submission of Your Manuscript, below for more information). You will not be able to upload your manuscript for publication until you have completed the electronic copyright form, including the following:

1. Clearance Statement
2. No-Infringement Statement
3. Publication Status Statement
4. One Copyright Assignment Statement (either A, B, C, or D)

Be sure to read the copyright statements carefully. If you are not sure which copyright statement to use, contact your legal Department. AIAA cannot help you determine which statement to use. A hardcopy of the copyright form is included in this kit for reference only. As only the Web-based document will be used, you do not need to complete the hardcopy form.

Do not include a copyright statement anywhere on your paper. The correct statement will be added automatically by

AIAA at the time of processing. *Do not upload the copyright form with your paper.*

E. Submission Deadlines

You will be notified of the specific manuscript submission deadline in your acceptance letter, and the deadline will also be listed on the conference Web site. For final manuscript submissions, we ask that authors not upload a draft version of their manuscript with the intent to upload a final version later. *Only one upload will be accepted for the final version of your manuscript.*

On-line conference proceedings will be made accessible to attendees who have registered for the "full conference" option two weeks prior to the conference. Please keep that date in mind when preparing and uploading the final manuscript.

To ensure conference quality, session chairs will enforce a "no paper, no podium" rule. This policy states that if your manuscript is not uploaded to the Web site prior to your presentation, you will not be allowed to present the paper at the conference.

F. Paper Length and Color Illustrations

As of 2006, all papers presented at AIAA events are published in an electronic-only (online and/or DVD) format. Papers published in either of these electronic formats will be reproduced in color automatically. A paper size/length limit no longer applies to papers published electronically.

II. Submission of Your Manuscript

Final manuscripts are to be uploaded to AIAA through the conference ScholarOne Abstracts submission web site. The author designated as the presenter of the accepted abstracts will receive an invitation email with a direct link to the submission site that will provide detailed instruction about how to upload. If you have a co-author who will be uploading the manuscript, please be sure to forward the invitation email to him/her.

As with the submission of your abstract, be sure the name of the file you upload for processing is short and simple (i.e., "msc12345.doc") with no spaces, symbols, or other unusual characters. If the file being uploaded is in Microsoft Word, the document must be based on the "Normal.dot" template (the AIAA Papers Template is based on this template). Failure to meet these requirements could result in a processing error that would require you to re-upload your manuscript.

If you are uploading a PDF or postscript file, please do not include any foreign (i.e., non-Roman alphabet) fonts, except for those characters used as nomenclature and defined in the "Nomenclature" section at the beginning of the manuscript.

III. Formatting Guidelines

The styles and formats to be used for all AIAA technical papers have been incorporated into the structure of this document and its partner document, the AIAA Papers Template. To simplify the formatting process, you can now use the Papers Template as a guide (type-over or cut-and-paste) to formatting your paper. Detailed instructions on the use of the template are included in the template document itself. This template is available for download in Word and LaTeX formats under the Author Resources link on your conference Web site. A LaTeX style and sample files are also available for those authors who prefer to use LaTeX. Regardless of which program you use to prepare your manuscript, the formatting requirements are identical; please follow the specific formatting instructions in whichever template you use.

A. General Formatting

The default font for AIAA papers is Times New Roman, 10-point size. In the electronic template, use the "Text" style from the pull-down menu to format all primary text for your manuscript. The first line of every paragraph should be indented, and all lines should be single-spaced. Default margins are 1" on all sides. In the electronic version of the template, all margins and other formatting are preset. There should be no additional lines between paragraphs.

Your manuscript should be typed in *single-column, single-spaced* format, to fit on an 8.5" by 11" page. Margins should be 1" on all sides.

NOTE: If you are using the electronic template (Papers_Template.dot) to format your manuscript, the required spacing and formatting will be applied automatically, simply by selecting the appropriate style designation from the pull-down menu.

B. Abstract

The abstract should appear at the beginning of your paper. It should be one paragraph long (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. The abstract should be bold, indented 3 picas (1/2") on each side, and separated from the rest of the document by two blank lines.

C. Headings

The title of your paper should be typed in bold, 18-point type, with capital and lower-case letters, and centered at the top of the page. The names of the authors, business or academic affiliation, city, and state/province should 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 is to include that author's city, state, and zip/postal code (or city, province, zip/postal code and country, as appropriate). The first footnote (lower left-hand side) is to contain the job title and department name, street address/mail stop, and AIAA member grade for each author.

- Major headings ("Heading 1" in the template style list) are bold 11-point font, centered, and numbered with Roman numerals.
- Subheadings ("Heading 2" in the template style list) are bold, flush left, and numbered with capital letters.
- Sub-Subheadings ("Heading 3" in the template style list) are italic, flush left, and numbered (1. 2. 3., etc.)

D. Footnotes, Endnotes and References

Footnotes and endnotes, where they appear, should be placed above the 1" margin at the bottom of the page. Footnotes are formatted automatically in the template, but if another medium is used, should appear in superscript as symbols in the sequence, *, †, ‡, §, ¶, #, **. ††, ‡‡, §§, etc.

List and number all bibliographical references at the end of the paper. Corresponding superscript numbers are used to cite references in the text,¹ unless the citation is an integral part of the sentence (e.g., "It is shown in Ref. 2 that...") or follows 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.⁶⁻⁸ Reference citations in the text should be in numerical order.

E. Images, Figures, and Tables

All artwork, captions, figures, graphs, and tables will be reproduced exactly as submitted. Be sure to position any figures, tables, graphs, or pictures as you want them printed. AIAA will not be responsible for incorporating your figures, tables, etc. (Company logos and identification numbers are not permitted on your illustrations.)

F. Equations, Numbers, Symbols, and Abbreviations

Equations are centered and numbered consecutively, with equation numbers in parentheses flush right. Use only standard symbols and abbreviations in text and illustrations. Be sure that the symbols in your equation are defined before the equation appears, or immediately following.

G. Page Numbers and Identifications

The page number should be printed on the bottom center of every page. Directly below this number should appear the words "American Institute of Aeronautics and Astronautics," as appears in this document.

H. General Grammar and Preferred Usage

Use only one space after periods or colons. Hyphenate complex modifiers: "zero-field-cooled magnetization." Avoid dangling participles, such as, "Using Eq. (1), the potential was calculated." [It is not clear who or what used Eq. (1).] Write instead "The potential was calculated using Eq. (1)," or "Using Eq. (1), we calculated the potential."

Use a zero before decimal points: "0.25," not ".25." Use "cm²," not "cc." Indicate sample dimensions as "0.1 cm x 0.2 cm," not "0.1 x 0.2 cm²." The preferred abbreviation for "seconds" is "s," not "sec." Do not mix complete spellings and abbreviations of units: use "Wb/m²" or "webers per square meter," not "webers/m²." When expressing a range of values, write "7 to 9" or "7-9," not "7~9."

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.) In American English, periods and commas are placed within quotation marks, like "this period." Other punctuation is "outside"! Avoid contractions; for example, write "do not" instead of "don't." The serial comma is preferred: "A, B, and C" instead of "A, B and C."

If you wish, you may write in the first person singular or plural and use the active voice ("I observed that..." or "We observed that..." instead of "It was observed that..."). Remember to check spelling. If your native language is not English, please ask a native English-speaking colleague to proofread your paper.

The word "data" is plural, not singular (i.e., "data are," not "data is"). The subscript for the permeability of vacuum μ_0 is zero, not a lowercase letter "o." The term for residual magnetization is "remanence"; the adjective is "remanent"; do not write "remnance" or "remnant." The word "micrometer" is preferred over "micron" when spelling out this unit of measure. 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). Use the word "whereas" instead of "while" (unless you are referring to simultaneous events). Do not use the word "essentially" to mean "approximately" or "effectively." Do not use the word "issue" as a euphemism for "problem." When compositions are not specified, separate chemical symbols by en-dashes; for example, "NiMn" indicates the intermetallic compound Ni_{0.5}Mn_{0.5} whereas "Ni-Mn" indicates an alloy of some composition Ni_xMn_{1-x}.

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."

Prefixes such as “non,” “sub,” “micro,” “multi,” and “ultra” are not independent words; they should be joined to the words they modify, usually without a hyphen. There is no period after the “et” in the abbreviation “et al.” The abbreviation “i.e.,” means “that is,” and the abbreviation “e.g.,” means “for example” (these abbreviations are not italicized). If desired, more detailed style and formatting instructions can be found in the AIAA style guide, *AIAA Style* (available from AIAA upon request).

I. Conclusion

A conclusion section is not required, though it is preferred. Although a conclusion may review the main points of the paper, do not replicate the abstract as the conclusion. A conclusion might elaborate on the importance of the work or suggest applications and extensions. *Note that the conclusion section is the last section of the paper that should be numbered. The appendix (if present), acknowledgment, and references should be listed without numbers.*

Appendix

An appendix, if needed, should appear before the acknowledgements.

Acknowledgments

The preferred spelling of the word “acknowledgment” in American English is without the “e” after the “g.” Avoid expressions such as “One of us (S.B.A.) would like to thank...” Instead, write “F. A. Author thanks...” *Sponsor and financial support acknowledgments are also to be listed in the “acknowledgments” section.*

References

The following pages are intended to provide examples of the different reference types, as used in the AIAA Style Guide. When using the Word version of this template to enter references, select the “references” style from the drop-down style menu to automatically format your references. If you are using a print or PDF version of this document, all references should be in 9-point font, with reference numbers inserted in superscript immediately before the corresponding reference. You are not required to indicate the type of reference; different types are shown here for illustrative purposes only.

Periodicals

¹Vatistas, G. H., Lin, S., and Kwok, C. K., “Reverse Flow Radius in Vortex Chambers,” *AIAA Journal*, Vol. 24, No. 11, 1986, pp. 1872, 1873.

²Dornheim, M. A., “Planetary Flight Surge Faces Budget Realities,” *Aviation Week and Space Technology*, Vol. 145, No. 24, 9 Dec. 1996, pp. 44-46.

³Terster, W., “NASA Considers Switch to Delta 2,” *Space News*, Vol. 8, No. 2, 13-19 Jan. 1997, pp., 1, 18.

All of the preceding information is required. The journal issue number (“No. 11” in Ref. 1) is preferred, but the month (Nov.) can be substituted if the issue number is not available. Use the complete date for daily and weekly publications. Transactions follow the same style as other journals; if punctuation is necessary, use a colon to separate the transactions title from the journal title.

Books

⁴Peyret, R., and Taylor, T. D., *Computational Methods in Fluid Flow*, 2nd ed., Springer-Verlag, New York, 1983, Chaps. 7, 14.

⁵Oates, G. C. (ed.), *Aerothermodynamics of Gas Turbine and Rocket Propulsion*, AIAA Education Series, AIAA, New York, 1984, pp. 19, 136.

⁶Volpe, 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.

Publisher, place, and date of publication are required for all books. No state or country is required for major cities: New York, London, Moscow, etc. A differentiation must always be made between Cambridge, MA, and Cambridge, England, UK. Note that series titles are in roman type.

Proceedings

⁷Thompson, C. M., “Spacecraft Thermal Control, Design, and Operation,” *AIAA Guidance, Navigation, and Control Conference*, CP849, Vol. 1, AIAA, Washington, DC, 1989, pp. 103-115

⁸Chi, Y., (ed.), *Fluid Mechanics Proceedings*, SP-255, NASA, 1993.

⁹Morris, J. D. “Convective Heat Transfer in Radially Rotating Ducts,” *Proceedings of the Annual Heat Transfer Conference*, edited by B. Corbell, Vol. 1, Inst. Of Mechanical Engineering, New York, 1992, pp. 227-234.

At a minimum, proceedings must have the same information as other book references: paper (chapter) and volume title, name and location of publisher, editor (if applicable), and pages or chapters cited. Do not include paper numbers in proceedings references, and delete the conference location so that it is not confused with the publisher’s location (which is mandatory, except for government agencies). Frequently, CP or SP numbers (Conference Proceedings or Symposium Proceedings numbers) are also given. These elements are not necessary, but when provided, their places should be as shown in the preceding examples.

Reports, Theses, and Individual Papers

¹⁰Chapman, G. T., and Tobak, M., “Nonlinear Problems in Flight Dynamics,” NASA TM-85940, 1984.

¹¹Steger, J. L., Jr., Nietubicz, C. J., and Heavey, J. E., "A General Curvilinear Grid Generation Program for Projectile Configurations," U.S. Army Ballistic Research Lab., Rept. ARBRL-MR03142, Aberdeen Proving Ground, MD, Oct. 1981.

¹²Tseng, K., "Nonlinear Green's Function Method for Transonic Potential Flow," Ph.D. Dissertation, Aeronautics and Astronautics Dept., Boston Univ., Cambridge, MA, 1983.

Government agency reports do not require locations. For reports such as NASA TM-85940, neither insert nor delete dashes; leave them as provided by the author. Place of publication *should* be given, although it is not mandatory, for military and company reports. Always include a city and state for universities. Papers need only the name of the sponsor; neither the sponsor's location nor the conference name and location are required. *Do not confuse proceedings references with conference papers.*

Electronic Publications

CD-ROM publications and regularly issued, dated electronic journals are permitted as references. Archived data sets also may be referenced as long as the material is openly accessible and the repository is committed to archiving the data indefinitely. References to electronic data available only from personal Web sites or commercial, academic, or government ones where there is no commitment to archiving the data are not permitted (see Private Communications and Web sites).

¹³Richard, J. C., and Fralick, G. C., "Use of Drag Probe in Supersonic Flow," *AIAA Meeting Papers on Disc* [CD-ROM], Vol. 1, No. 2, AIAA, Reston, VA, 1996.

¹⁴Atkins, C. P., and Scantelbury, J. D., "The Activity Coefficient of Sodium Chloride in a Simulated Pore Solution Environment," *Journal of Corrosion Science and Engineering* [online journal], Vol. 1, No. 1, Paper 2, URL: <http://www.cp.umist.ac.uk/JCSE/vol1/vol1.html> [cited 13 April 1998].

¹⁵Vickers, A., "10-110 mm/hr Hypodermic Gravity Design A," *Rainfall Simulation Database* [online database], URL: <http://www.geog.le.ac.uk/bgrg/lab.htm> [cited 15 March 1998].

Always include the citation date for online references. Break Web site addresses after punctuation, and do not hyphenate at line breaks.

Computer Software

¹⁶TAPP, Thermochemical and Physical Properties, Software Package, Ver. 1.0, E. S. Microware, Hamilton, OH, 1992.

Include a version number and the company name and location of software packages.

Patents

Patents appear infrequently. Be sure to include the patent number and date.

¹⁷Scherrer, R., Overholster, D., and Watson, K., Lockheed Corp., Burbank, CA, U.S. Patent Application for a "Vehicle," Docket No. P-01-1532, filed 11 Feb. 1979.

Private Communications and Web Sites

References to private communications and personal Web site addresses are generally not permitted. Private communications can be defined as privately held unpublished letters or notes or conversations between an author and one or more individuals. They *may* be cited as references in some case studies, but only with permission of the AIAA staff. Depending on the circumstances, private communications and Web site addresses may be incorporated into the main text of a manuscript or may appear in footnotes.

Unpublished Papers and Books

Unpublished works can be used as references as long as they are being considered for publication or can be located by the reader (such as papers that are part of an archival collection). If a journal paper or a book is being considered for publication choose the format that reflects the status of the work (depending upon whether it has been accepted for publication):

¹⁸Doe, J., "Title of Paper," Conference Name, Publisher's name and location (submitted for publication)

¹⁹Doe, J., "Title of Paper," *Name of Journal* (to be published).

²⁰Doe, J., "Title of Chapter," *Name of Book*, edited by... Publisher's name and location (to be published).

²¹Doe, J., "Title of Work," Name of Archive, Univ. (or organization) Name, City, State, Year (unpublished).

Unpublished works in an archive *must* include the name of the archive and the name and location of the university or other organization where the archive is held. Also include any cataloging information that may be provided. Always query for an update if a work is about to be published.

[Note: If Copyright Form A is signed, the notice will read as follows: "Copyright © 20____ by the American Institute of Aeronautics and Astronautics, Inc. All rights reserved."]

Signature of Author Date

Occasionally, special situations arise in which the author (or his organization, if he has assigned his copyright to it) wishes to retain the copyright in his (or its) name. In such a case, AIAA requires a license to publish the work. **Copyright Form B** should be used for this purpose.

Copyright Form B: I hereby license AIAA to publish this work and to use it for all of AIAA’s current and future print and electronic uses.

[Note: If the author retains copyright (Copyright Form B), the notice, in the name of the copyright holder, will read as follows: "Copyright © 20____ by _____. Published by the American Institute of Aeronautics and Astronautics, Inc., with permission."]

Signature of Author or Other Copyright Proprietor Date

NOTICE TO AUTHORS EMPLOYED BY GOVERNMENT AGENCIES OR GOVERNMENT CONTRACTORS:

1. A "work of the United States Government" (hereinafter called a Government work) is a work prepared by an officer or employee of the United States Government as part of that person’s official duties. In some cases, works prepared by employees of private companies who are under contract to a Government agency may also be Government works.
2. Copyright protection under the U.S. Copyright Law is not available for any Government work; however, copyright protection is available for a work of a Government employee that is done apart from his or her official duties, and the copyright shall reside in the employee (subject to any transfer made by the employee).
3. When a work of a Government employee does not fall within the purview of his or her official duties, the employee’s use of Governmental time, material, or facilities will not, of itself, make the work a Government work.
4. Under the current copyright law a work may be protected, within certain limitations, even if a copyright notice is not present; however, the presence of a copyright notice on a work makes it clear to a reader who the copyright proprietor is and who can grant a license to reproduce the work, etc.
5. If a work of a Government employee is not a Government work, AIAA will not publish the work unless AIAA receives an assignment (**Copyright Form A**) or a license (**Copyright Form B**).
6. **Copyright Form C** is the appropriate form to be executed by a Government-employee author who has prepared a Government work.
7. Government-contract authors should sign **Copyright Form D**. Because of a special copyright agreement executed with AIAA, **D-APL** is the appropriate form for Government-contract authors employed by the Applied Physics Laboratory.
8. Please execute one of the four forms. If you are uncertain as to whether the work was outside your official duties, the AIAA encourages you to seek appropriate counsel within your agency.

Copyright Form C: This material is a work of the U.S. Government and is not subject to copyright protection in the United States.

[Note: If Copyright Form C is signed, the notice will read as follows: "This material is declared a work of the U.S. Government and is not subject to copyright protection in the United States."]

Signature of Author Date

Copyright Form D: I prepared this work as part of my official duties as an employee of a Government contractor.

[Note: If Copyright Form D is signed, the notice will read as follows: "Copyright © 20____ by the American Institute of Aeronautics and Astronautics, Inc. The U.S. Government has a royalty-free license to exercise all rights under the copyright claimed herein for Governmental purposes. All other rights are reserved by the copyright owner."]

Signature of Authorized Official Date

Print Name and Title

Copyright Form D–APL: The above-identified work was created by the Johns Hopkins University, Applied Physics Laboratory (JHU/APL), under funding from the U.S. Government. JHU/APL hereby assigns its copyright in the above work to AIAA. JHU/APL reserves all proprietary rights in the work other than copyright, reserves the right to use the work in future works of its own, and reserves the right to make copies of the work for its own use, but not for sale.

[*Note:* If Copyright Form D–APL is signed, pursuant to agreement between JHU/APL and AIAA, the notice will read as follows:

“Copyright © 20_____ by the American Institute of Aeronautics and Astronautics, Inc. Under the copyright claimed herein, the U.S. Government has a royalty-free license to exercise all rights for Governmental purposes. All other rights are reserved by the copyright owner.”]

Signature of Authorized Official _____ Date _____

Print Name and Title _____

Copyright Form D–NREL: The above-identified work was created by the National Renewable Energy Laboratory (NREL), under funding from the U.S. Government. NREL hereby assigns its copyright in the above work to AIAA. NREL reserves all proprietary rights in the work other than copyright, reserves the right to use the work in future works of its own, and reserves the right to make copies of the work for its own use, but not for sale.

[*Note:* If Copyright Form D–NREL is signed, pursuant to agreement between NREL and AIAA, the notice will read as follows:

“Copyright © 20_____ by the American Institute of Aeronautics and Astronautics, Inc. Under the copyright claimed herein, the U.S. Government has a royalty-free license to exercise all rights for Governmental purposes. All other rights are reserved by the copyright owner.”]

Signature of Authorized Official _____ Date _____

Print Name and Title _____