

Project Number: P20101

S³ SOLAR SAILING CUBESAT

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ABSTRACT – USE STYLE “ABSTRACT CLAUSE TITLE”

A brief summary (often <200 words). The primary purpose of the abstract is to provide a concise summary of the paper so that readers can decide whether or not the full text is of interest to them. The abstract should articulate project objective, scope, and results.

NOMENCLATURE – USE STYLE “NOMENCLATURE CLAUSE TITLE”

Most teams will be able to integrate nomenclature within the body of the paper. *If you have significant nomenclature to define*, you may want to create a distinct Nomenclature section. Nomenclature should follow customary usage. For reference, consult American National Standards Institute (ANSI) recommendations. The nomenclature list should be in alphabetical order (capital letters first, followed by lowercase letters), followed by any Greek symbols, with subscripts and superscripts last, identified with headings

BACKGROUND (OR MOTIVATION) – USE STYLE “TEXT HEADING 1”

This section should articulate the design objective, the scope and motivation for the overall effort, along with a historical context for the project. The introduction may take the form of a literature review, review of prior projects, benchmarking survey, or a combination of these. Note: As you write the paper, you don't need to adjust the spacing between paragraphs or between headings and text. If you use the styles indicated for headings, and use “Body Text Indent” for all standard text, you will not need to add extra carriage returns or change paragraph spacing.

DESCRIPTION OF DESIGN – USE STYLE “TEXT HEADING 1”

This section should describe the theoretical underpinnings for your project, assumptions made, methods used and experiments performed, along with an overview of the design process utilized – eg. customer requirements, engineering requirements, constraints, concepts, evaluation, analysis, building and testing. Be sure to explicitly call out applicable engineering standards.

SUPPORTING FEASIBILITY EVIDENCE (AS APPROPRIATE) – USE STYLE “TEXT HEADING 1”

This section should describe your final prototype (product or process), whether it met specs (results of testing), and how you evaluated its success. Most conference papers include enough information for your work to be reproducible.

RESULTS, CONCLUSION, AND RECOMMENDATIONS – USE STYLE “TEXT HEADING 1”

This section should include a critical evaluation of project successes and failures, and what you would do differently if you could repeat the project. It’s also important to provide recommendations for future work.

REFERENCES – USE STYLE “REFERENCES CLAUSE TITLE”

Within the text, references should be cited in numerical order, by order of appearance. The numbered reference should be enclosed in brackets. For example: “It was shown by Prusa [1] that the width of the plume decreases under these conditions.” In the case of two citations, the numbers should be separated by a comma [1,2]. In the case of more than two references, the numbers should be separated by a dash [5-7].

References to original sources should be listed together at the end of the paper, and should include papers, technical reports, books, prior team projects, personal discussions, websites (not Wikipedia), and software. References should be arranged in numerical order according to the sequence of citations within the text. Each reference should include the last name of each author followed by his or her initials.

(1) References to journal articles and papers in serial publications should include: last name of each author followed by their initials, year, full title of the article in quotes, full name of the publication (abbreviated), volume number (if any) in **bold** (do not include the abbreviation, "Vol."), issue number (if any) in parentheses (do not include the abbreviation, "No."), inclusive page numbers using “pp.”.

(2) Reference to textbooks and monographs should include: last name of each author followed by their initials, year of publication, full title of the publication in italics, publisher, city of publication, inclusive page numbers using “pp.”, chapter number (if any) at the end of the citation following the abbreviation, “Chap.”

(3) Reference to individual conference papers, papers in compiled conference proceedings, or any other collection of works by numerous authors should include: last name of each author followed by their initials, year of publication, full title of the cited paper in quotes, individual paper number (if any), full title of the publication in italics initials followed by last name of editors (if any) followed by the abbreviation, “eds.”, city of publication, volume number (if any) in boldface – include, “Vol.” if part of larger identifier (e.g., “PVP-Vol. 254”) – inclusive page numbers of using “pp.”.

(4) Reference to theses and technical reports should include: last name of each author followed by their initials, year of publication, full title in quotes, report number (if any), publisher or institution name, city.

Example References:

- [1] Ning, X., and Lovell, M. R., 2002, "On the Sliding Friction Characteristics of Unidirectional Continuous FRP Composites," *ASME J. Tribol.*, **124**(1), pp. 5-13.
- [2] Barnes, M., 2001, "Stresses in Solenoids," *J. Appl. Phys.*, **48**(5), pp. 2000–2008.
- [3] Jones, J., 2000, *Contact Mechanics*, Cambridge University Press, Cambridge, UK, Chap. 6.
- [4] Lee, Y., Korpela, S. A., and Horne, R. N., 1982, "Structure of Multi-Cellular Natural Convection in a Tall Vertical Annulus," *Proc. 7th International Heat Transfer Conference*, U. Grigul et al., eds., Hemisphere, Washington, DC, **2**, pp. 221–226.
- [5] Hashish, M., 2000, "600 MPa Waterjet Technology Development," *High Pressure Technology*, **PVP-Vol. 406**, pp. 135-140.
- [6] Watson, D. W., 1997, "Thermodynamic Analysis," ASME Paper No. 97-GT-288.
- [7] Tung, C. Y., 1982, "Evaporative Heat Transfer in the Contact Line of a Mixture," Ph.D. thesis, Rensselaer Polytechnic Institute, Troy, NY.
- [8] Kwon, O. K., and Pletcher, R. H., 1981, "Prediction of the Incompressible Flow Over A Rearward-Facing Step," Technical Report No. HTL-26, CFD-4, Iowa State Univ., Ames, IA.

ACKNOWLEDGMENTS – USE STYLE “ACKNOWLEDGMENTS CLAUSE TITLE”

Be sure to acknowledge your sponsor and customer as well as other individuals who have significantly helped your team throughout the project. Acknowledgments may be made to individuals or institutions.

Requirements and Advice

Construct an outline

A proper outline is the framework upon which a good paper is readily written. In the process of making the outline, ideas are classified and thoughts are ordered into a logical sequence that is readily transformed into complete sentences. In outline form, the sequence of the various items and the progression of thought can easily be adjusted and readjusted until the desired order is obtained.

Length

Your paper should not exceed 8 printed pages, all inclusive!

Style. The chief purpose of the paper is to convey information to others, many of whom may be less familiar with the general subject than the author. Care should be taken, therefore, to use simple terms and expressions and to make statements as concise as possible. If highly technical terms or phraseology are necessary, they should be adequately explained and defined. The use of the first person and reference to individuals should be made in a manner that avoids personal bias. Company names should be mentioned only in the acknowledgments.

Papers should be concise. Long quotations should be avoided by referring to sources. Illustrations and tables are desirable but they should be kept to a reasonable level, especially considering the 8-page maximum length. Detailed drawings, lengthy test data and calculations, and photographs that may be interesting but which are not integral to the understanding of the subject, should be omitted. Equations should be kept to a reasonable level.

Originality

Only original contributions are accepted for publication. Under certain circumstances, reviews, collations, or analyses of information previously published may be acceptable.

Accuracy

All technical, scientific, and mathematical information contained in the paper should be carefully checked. SI units of measurement should be used. When U.S. customary units are given preference, the SI equivalent should be provided in parentheses or in a supplementary table. Similarly, when preference is given to SI units, the U.S. customary units should be provided in parentheses or in a supplementary table.

Headings

Headings and subheadings should appear throughout the paper to divide the subject matter into logical parts. Headings assist the reader in following your thought process and in forming a mental picture of the points of chief importance.

Tabulations/Enumerations

It is often advantageous to put related items in tabular or enumerative form, one after the other, rather than simply running them into the text. This arrangement, in addition to emphasizing the items, creates a graphic impression that aids the reader in accessing the information. It is customary to identify the individual items as (1), (2), (3), etc., or as (a), (b), (c), etc. Although inclusion of such elements makes the text livelier, care should be taken not to use this scheme too frequently, as it can make the reading choppy.

Mathematics

Equations should be numbered consecutively beginning with (1) and including any appendices. The number should be enclosed in parentheses and placed on the right-hand-side of the equation. It is this number that should be referenced within the text. An example is shown below in Eq. (1).

$$\frac{\partial^2 T}{\partial x^2} = \frac{1}{\alpha} \frac{\partial T}{\partial t} \quad (1)$$

Formulas and equations should be created to clearly distinguish capital letters from lowercase letters. Care should be taken to avoid confusion between the lowercase "l"(el) and the numeral one, or between zero and the lowercase "o." All subscripts, superscripts, Greek letters, and other symbols should be clearly indicated.

In all mathematical expressions and analyses, any symbols (and the units in which they are measured) not previously defined in nomenclature should be explained. If the paper is highly mathematical in nature, it may be advisable to develop equations and formulas in appendices rather than in the body of the paper.

Figures

All figures (graphs, line drawings, photographs, etc.) should be numbered consecutively and have a caption consisting of the figure number and a brief title or description. The caption should be centered under the figure, using style "Figure Caption". This number should be used when referring to the figure in text. Figures should be referenced within the text as "Fig. 1." When a reference begins a sentence the abbreviation "Fig." should be spelled out (e.g., "Figure 1").

Figures should be embedded electronically into your paper. Be sure to include the actual figure and not a link to another file. All photographs should be submitted as good quality jpeg or tiff files embedded in the Word file.

Tables

All tables should be numbered consecutively and have a caption consisting of the table number and a brief title. The caption should be centered above the table, using style "Table Caption". The table number should be used when referring to the table in text.

Tables may be inserted as part of the text, or included on a separate page immediately following or as close as possible to its first reference, with the exception tables included in an appendix.

Format

Papers must be submitted in .docx or .pdf format. Do not assume that any additional layout work will be performed, although we do reserve the right to make layout changes and editorial changes as needed to meet the publication turn-around time.

Check all page headings to be sure that dates and paper numbers are current. Also:

- Math expressions must be created using the Equation Editor supplied with Microsoft Word. Otherwise, the integrity of these special characters will be lost.
- All graphics should be embedded in the text file. Make sure the image is INCLUDED in the paper – not hyperlinked to a separate file.
- All Tables must be created using the Table utility provided with Microsoft Word. Tables created by use of the tab keys will not convert properly.
- No styling is necessary. However, inclusion of italics and roman script is necessary to indicate math and other special characters.
- Label the electronic file clearly as "*Pxxxx project name*" and submit it to myCourses.