Theoretical & Applied Mechanics Letters Style and Notation Guide

TAML Office

November 2020

Contents

This guide represents the general rule for *Theoretical & Applied Mechanics Letters* (TAML), which will help the author prepare the manuscript in correct format.

1 Article type and structure

TAML published several types of articles: letter, article, perspective etc. All manuscripts must contain the essential elements needed to describe your research.

For **LETTER**-type article, there is no heading or subheading, and the manuscript should only contain title, keywords, abstract, main body, acknowledgment, and reference. We expect your submission as letter-type to be no more than 3,000 words and up to 6 figures.

For full **ARTICLE**, the main body divide into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc. (The abstract and acknowledgement are not included in section numbering).

Any section and subsection may be given a brief heading. The formats for different level are list as below.

> **1. Introduction of mechanics history**

Left justified, bold and upright, first word capitalized, and preceded by an arabic numeral and a period.

> *1.1. Mechanics of tunable lens*

Left justified, first word capitalized, italic instead of bold, preceded by an arabic numeral and a period of section. We expect your submission as article-type to be no more than 8,000 words and up to 12 figures.

For **PERSPECTIVE**, the length is limited within 2 pages as 2,000 words.

Normally, we count 1 figure as 200 words to calculate pages.

2 Title page

The preliminary matter of title page include article title, authors & affiliations, abstract, highlights, keywords, and graphic abstract.

2.1 Title

Keep title concise and informative. Avoid abbreviation, acronyms and formulae where possible. Unnecessary words (a, on, an, the, etc.) at the beginning of the title should be dropped.

2.2 Author(s) and affiliation(s)

Clearly indicate the author's name, and keep same name formatting for all authors. Corresponding author should be marked with "*", ensure that the e-mail address is given and that contact details are kept up to date, and handle correspondence at all stages of refereeing and publication, also post-publication.

If there is more than one affiliation, indicate all affiliations with a lowercase superscript letter (a, b, c, etc.) immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

If an author has moved since the work described in the article was done, or was visiting at the time, a "Present address" (or "Permanent address") may be indicated as a footnote to that author's name.

Figure 1: Example of article title.

2.3 Abstract

A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s).

Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

2.4 Graphical abstract

Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531×1328 pixels (h $\times$ w) or proportionally more. The image should be readable at a size of 5×13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. See http://www.elsevier.com/graphicalabstracts for examples. Authors can make use of Elsevier's Illustration and Enhancement service to ensure the best presentation of their images and in accordance with all technical requirements: Illustration Service.
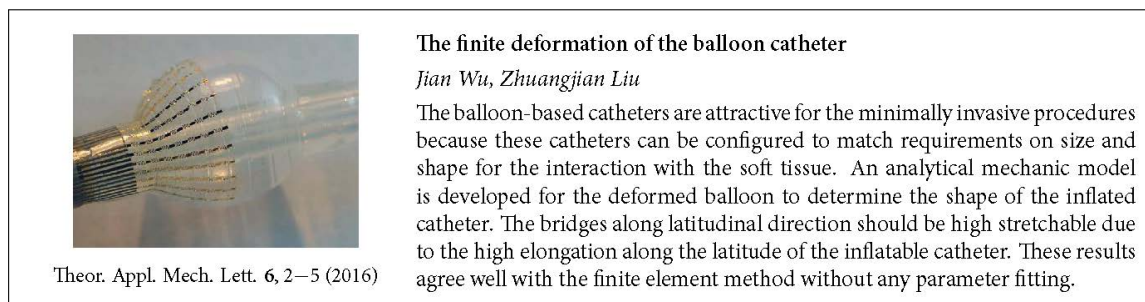
The finite deformation of the balloon catheter

Jian Wu, Zhuangjian Liu

The balloon-based catheters are attractive for the minimally invasive procedures because these catheters can be configured to match requirements on size and shape for the interaction with the soft tissue. An analytical mechanic model is developed for the deformed balloon to determine the shape of the inflated catheter. The bridges along latitudinal direction should be high stretchable due to the high elongation along the latitude of the inflatable catheter. These results agree well with the finite element method without any parameter fitting.

Theor. Appl. Mech. Lett. **6**, 2−5 (2016)

Figure 2: Example of graphics abstract.

2.5 Highlights

Highlights are a short collection of bullet points that convey the core findings of the article. Highlights should be submitted in a separate editable file in the online submission system. Please use "Highlights" in the file name and include 3 to 5 bullet points (maximum 120 characters, including spaces, per bullet point). See http://www.elsevier.com/highlights for more information.

H I G H L I G H T S

- An integrated algorithm for cyclotetramethylene tetranitramine (HMX) particle detonation that incorporates equations of state, Arrhenius kinetics, and mixing rules.
- A stabilized Taylor–Galerkin finite element simulation algorithm with pressure and temperature equilibrium enforced across phases.
- The scheme captures the distinct features of detonation waves: rarefaction wave, contact discontinuity, shock wave, and the von Neumann spike.
- Computed detonation velocity compares well with experiments reported in literature.

Figure 3: Example of highlights.

2.6   Keywords

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, "and", "of"). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

3   Abbreviation

Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

An abbreviation for a phrase should include the initial letter of the words of the phrase in either capital (PDMS for Polydimethylsiloxane, ILED for inorganic light-emitting diodes, etc.).

4   Units

The author is encouraged to use metric units (Systèm International).

1) Decimal multiples or submultiple of unites are indicated by the use of prefixes, and the combination of prefix and unit symbol is treated as a single symbol. Avoid ambiguous formation such as: 6 J/cm^3/s, which should be written as: 6 J/(cm^3·s) or 6 J·cm^{-3}·s^{-1}.

2) The abbreviation must be used after a number given in numerals as: 1 kg (not 1 kilogram).

3) The number is separated from the unit following by a full space as 8.9 km, expect 2%, 3°, 4°C.

Table 1: Multiplier prefixes

Prefix	Symbol	Factor	Prefix	Symbol	Factor
deci	d	10^{-1}	deka	da	10^{1}
centi	c	10^{-2}	hecto	h	10^{2}
milli	m	10^{-3}	kilo	k	10^{3}
micro	μ	10^{-6}	mega	M	10^{6}
nano	n	10^{-9}	giga	G	10^{9}
pico	p	10^{-12}	tera	T	10^{12}
femto	f	10^{-15}	peta	P	10^{15}
atto	a	10^{-18}	exa	E	10^{18}

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5   Characters

In general, there are two types of alphabet used: Latin and Greek. And each of them has several format, uppercase and lowercase, lightface and boldface. There are five different letter type fonts for Latin alphabet: roman, italic, script, sans serif and German.

Greek alphabets are used to represent: variables and constants, symbols for particles, operators, units.

Roman font (upright): English words, abbreviations (both on line and as subscripts and superscripts), chemical symbol and compounds, units os measure, most multiletter operators and functions (e.g., exp, ln, sin, cosh), modes, shapes, data-run numbers, figure part labels [e.g., a, b, etc.], part of apparatus, letters in periodic table, letters in equation numbers [e.g., 1a, 1b], figures, tables.

The superscript "T" representing the transpose of matrix is in Roman, not in Italic. $\boldsymbol{A}^{\mathrm{T}}$ is the transpose of matrix $\boldsymbol{A}$, while $\boldsymbol{A}^{T}$ is not the correct format.

Italic font (slanted): foreign words, words or phrases that indicate emphasis, variable (scalar variable as Italic, and vector, tensor or matrix as Bold Italic), symbols for particles, most single-letter operators, axes and planes, channels, types (e.g., n, p), bands, geometric points, angles, lines, chemical prefixes, symmetry designations, transitions, critical points, color centers quantum-state symbols in spectroscopy, and most single letter abbreviations.

Units: cm, kg, etc. Mathematical constants: e, π, i, d (differentiation symbol), $\triangle$, δ.

The units should be used consistently throughout the article. For example, use either °C or K for the temperature unit, but don't use both of them within the same article.

5.1   Numbers

Use scientific notation for number in the article. Replace "3E9" and "2E-10" with 3×10^9 and 2×10^{-10}.

6   Equations

In a formula or mathematical expressions, parentheses ( ) , brackets [ ], and braces { } with ordering $\{\{\{[(formula)]\}\}\}$ are used to group mathematical expressions.

$$a_{v,k} = \frac{4E_v^2 - \{W_1^{(1)}(x) - [2W_2^{(1)}(x) - W_3^{(1)}(x)]\}}{\ln[W_l W_v/(12E_g)^2]}. \tag{1}$$

The punctuation at the end of a formula should follow the rule of the full sentence which it belongs. For example:

...in fibrous materials, which can be defined as

$$\sigma = \frac{\eta}{\phi \langle w_x \rangle}, \tag{2}$$

$$\alpha_\infty = \langle E_x^2 \rangle / \langle E_x \rangle^2, \tag{3}$$

where the following symbol designates a fluid-phase average:

$$\langle * \rangle = \frac{1}{|\Omega_f|} \int_{\Omega_f} (*) \mathrm{d}V. \tag{4}$$

6.1 Fonts in Equations

Fonts should follow same rule as in article for equations.

$$u_{Total}(k) = \sqrt{u_{Front}^2(k) + u_{Back}^2(k)},$$

should be changed to:

$$u_{\text{Total}}(k) = \sqrt{u_{\text{Front}}^2(k) + u_{\text{Back}}^2(k)},$$

because "Total", "Front", and "Back" are not variants.

$$f(x) = a + bx^2 \tag{5}$$

$$\boldsymbol{u} = (u_1, u_2, u_3), R = \boldsymbol{u} \cdot \boldsymbol{u}, \boldsymbol{\Lambda} = \boldsymbol{u} \times \boldsymbol{u}. \tag{6}$$

6.2 Equation Number

Equations within an article should be numbered consecutively from the beginning of the article to the end. The author should avoid to use the numbering by section, e.g. (1.1), (1.2.3).

The equation number in the Appendix, should be consecutive numbering as the article as (A1), (A2), etc.

6.3 Citation of Equation

The citation to equation in the article are written: "from Eq. (1)", "from Eqs. (2) and (3)". At the beginning of a sentence, it's written as "Equation (2) specifies ...".

7 Figure and Table

All the figures and tables should be mentioned in the main text. The figures/tables shown in the text should be in the order from small to larger.

Figures are numbered with arabic numerals (1,2,3, etc.) with a, b, c, etc. to label the parts of figures.

Tables use arabic numerals with caption as: "Table 1". The variable and its unit should be in the style of "Variable (unit)". For a compound unit, parentheses should be added and "/" should be changed to "dot" accordingly as "Variable (compound unit)", such as "V (m·s^{-2})" instead of "V (m/s^2)".

Table 2: Typical parameter value for numerical calculations.

Parameter		Value	Parameter		Value
a	(nm)	0.046	A_{C}	(μm^2)	10
m_{r}	(μm^{-2})	650	m_{l}	(μm^{-2})	380
k_{f}^{ag}	(μm$^2 \cdot$ s^{-1})	1.65×10^{-5}	g	(m·s^{-2})	9.8

7.1 Citation of Figure and Table

The caption format as: "Fig. 1", "Figs. 1 and 2", "Fig. 1a", "Fig. 1a and 1b", etc. The word "Figure" at the beginning of a sentence can not be abbreviated to "Fig.". The citation of table should as "Table 1" or "Tables 1 and 2",

8 Acknowledgment

Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.). One paragraph is suggested, with acknowledgement of financial support listed at the end. The section number for acknowledgement is needn't, but follow the Level (1) format. Give the full name of the agencies instead of abbreviation.

9 References

The author should indicate references by number(s) in square brackets in line with the text. The name of authors can be referred to, but the reference number(s) must always be given. e.g. "... in the field [1, 3, 5-9].", "... comfortable sensors [13], and health devices [14].", "Wang et al. [19] introduced ...", and "... can be found in Ref. [19].".

Use the numbering also for internal cross-referencing: do not just refer to "the text".

Different reference sources should not be combined as one item, list each of them as single item.

In reference, the author name should follow "Firstname and Middlename Initial + Lastname" as "A. M. Gresnigt".

Type	Format of reference
Refer to a journal publication	[1] J. van der Geer, J.A.J. Hanraads, R.A. Lupton, The art of writing a scientific article, J. Sci. Commun. 163 (2010) 51C59. Authors, Title, Journal-Name Vol (Year) Page.
Refer to a book	[2] W. Strunk Jr., E.B. White, The Elements of Style, fourth ed., Longman, New York, 2000. Authors, Book-Name, Publisher, Location, Year.
Refer to a chapter in an edited book:	[3] G.R. Mettam, L.B. Adams, How to prepare an electronic version of your article, in: B.S. Jones, R.Z. Smith (Eds.), Introduction to the Electronic Age, E-Publishing Inc., New York, 2009, pp. 281C304. Authors, Chapter, Book Name, Publisher, Location, Year, pp. Page.
Refer to non-English	[4] X.C. Wu, Y.W. Wang, C.G. Huang, et al., Aerodynamic simulation of airship ambient flows with high attack angles and analysis on turbulence models and parameters, Eng. Mech. 31 (2014) 24C31. (in Chinese). Authors, Title, Journal-Name Vol (Year) Page (in Language).
Refer to Conference	[5] G.A. Toguyeni, J. Banse, Mechanically lined pipe: Installation by reel-lay, Offshore Technology Conference, Houston, Texas, USA, April 30-May 3, 2012. Authors, Title, Conference-Name, Location, Date.

Multiple authors:

When the number of authors is more than three, the "et al". should be used to replace the rest of authors of reference. Author1, Author2, Author3, et al.

[6] H. Marcellier, P. Vescovo, D. Varchon, P. Vacher, and P. Humbert, Optical analysis of displacement and strain fields on human skin, Skin Res. Technol. 7 (2001) 246C253.

should be changed to:

[6] H. Marcellier, P. Vescovo, D. Varchon, et al., Optical analysis of displacement and strain fields on human skin, Skin Res. Technol. 7 (2001) 246C253.

Journal abbreviations source

Journal names should be abbreviated according to the List of Title Word Abbreviations: http://www.issn.org/services/online-services/access-to-the-ltwa/.

10   Copyright Reminder

If any material that is included in a paper is under copyright, the authors of the paper are responsible for obtaining copyright permissions, including any information required by the copyright holder, and be able to produce such permissions upon request.