48 49

50

51

52

53

55

56

57

PNAS LaTeX template for preparing invited submissions on Overleaf

Author One^{a,c,1}, Author Two^{b,1,2}, and Author Three^a

Edited by Editor Name; This manuscript was compiled on November 25, 2025

Authors drafting perspectives should provide an abstract of no more than 250 words in a single paragraph. Abstracts should explain to the general reader the major contributions of the article. References in the abstract must be cited in full within the abstract itself and cited in the text. Commentaries do not publish with an abstract.

Keyword 1 | Keyword 2 | Keyword 3 | ...

This PNAS journal template is provided to help you write your work in the correct journal format. Instructions for use are provided below.

Note: please start your introduction without including the word "Introduction" as a section heading (except for math articles in the Physical Sciences section); this heading is implied in the first paragraphs.

Guide to using this template on Overleaf

Please note that whilst this template provides a preview of the typeset manuscript for submission, to help in this preparation, it will not necessarily be the final publication layout. For more detailed information please see the PNAS Author Center.

If you have a question while using this template on Overleaf, please use the Menu on the top bar and access the Documentation for help and tutorials. You can also contact the Overleaf support team at any time with specific questions about your manuscript.

Author Affiliations. For each author, include institutional unit (e.g., division, department, or section), institution, city, state with ZIP code (for US institutions) or country with postal code (for non-US institutions). Use lower case letters to match authors with institutions, as shown in the example. PNAS requires the corresponding author to provide an ORCID identifier at submission and strongly encourages all authors to use an ORCID ID. Do not include ORCIDs in the manuscript file; individual authors must link their ORCID account to their PNAS profile at www.pnascentral.org. For proper authentication, authors must provide their ORCID at submission and are not permitted to add ORCIDs on proofs.

Submitting Manuscripts. All authors must submit their articles at PNAScentral. If you are using Overleaf to write your article, you can use the "Submit to PNAS" option in the top bar of the editor window.

Format. This template is intended for authors writing invited commentaries or perspectives. The format for these article types may vary, but an abstract is required for perspectives. Please be sure to include the title, author line and author affiliations, keywords, acknowledgments, and references. Other sections or headings are permitted as needed.

Manuscript Length. Commentaries are 1,000-2,000 words with up to 20 references and one figure or table to help summarize the article for a broad multidisciplinary audience, 1 to 3 formatted



Fig. 1. Placeholder image of a frog with a long example legend to show justification

pages long. PNAS encourages the use of a single color figure or table since they help summarize the article for scientists outside the immediate field of the paper.

Perspectives may be up to 9 journal pages, inclusive of abstract, figures, and references. The standard format for perspectives is relaxed, so nonstandard headings are permitted.

References. References should be cited in numerical order as they appear in text; this will be done automatically via bibtex, e.g. (1) and (2-5). All references cited in the main text should be included in the main manuscript file.

Language-Editing Services. Prior to submission, authors who believe their manuscripts would benefit from professional editing are encouraged to use a language-editing service (see list at https://www.pnas.org/author-center/language-editing). PNAS does not take responsibility for or endorse these services, and their use has no bearing on acceptance of a manuscript for publication.

Digital Figures. EPS and high-resolution PDF are preferred formats for figures that will be used in the main manuscript. Authors may

Author affiliations: ^aAffiliation One; ^bAffiliation Two; ^cAffiliation Three

Please provide details of author contributions here.

Please declare any competing interests here.

59 60

61 62

64

65

67

69

70

71

72

73

75

76

77

78

80

81

82

83

85

86

87

88

90

91

92

93

95

96

97

98

100

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

¹ A.O.(Author One) contributed equally to this work with A.T. (Author Two) (remove if not applicable).

²To whom correspondence should be addressed. E-mail: author.twoemail.com

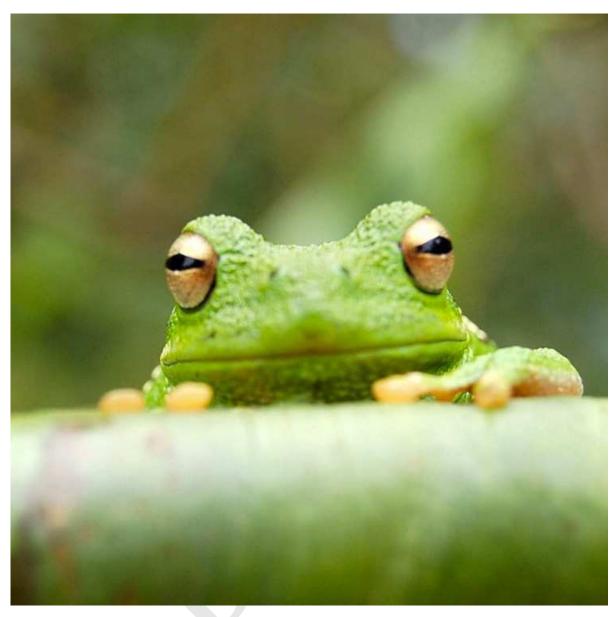


Fig. 2. Placeholder image of a frog with a long example legend to show justification setting.

submit PRC or U3D files for 3D images; these must be accompanied by 2D representations in TIFF, EPS, or high-resolution PDF format. Color images must be in RGB (red, green, blue) mode. Include the font files for any text.

Images must be provided at final size, preferably 1 column width (8.7cm). Figures wider than 1 column should be sized to 11.4cm or 17.8cm wide. Numbers, letters, and symbols should be no smaller than 6 points (2mm) and no larger than 12 points (6mm) after reduction and must be consistent.

Figures and tables should be labelled and referenced in the standard way using the \label{} and \ref{} commands.

Figure 1 shows an example of how to insert a column-wide figure. To insert a figure wider than one column, please use the \begin\figure*\}...\end\figure*\} environment. Figures wider than one column should be sized to 11.4 cm or 17.8 cm wide.

Tables. Tables should be included in the main manuscript file and should not be uploaded separately.

Table 1. Comparison of the fitted potential energy surfaces and ab initio benchmark electronic energy calculations

Species	CBS	CV	G3
Acetaldehyde	0.0	0.0	0.0
2. Vinyl alcohol	9.1	9.6	13.5
3. Hydroxyethylidene	50.8	51.2	54.0

nomenclature for the TSs refers to the numbered species in the table.

Footnotes. Footnotes are ordered by symbols such as *, †, ‡, etc. The article should contain only 13 footnotes[†].

Single column equations. Authors may use 1- or 2-column equations in their article, according to their preference.

^{*}Footnote Example 1

[†]Footnote Example 2

Fig. 3. This legend would be placed at the side of the figure, rather than below it.

Table 2. Impact on Emission Behaviors by Socioeconomic Status

	(1)	(2)	(3)	(4)	(5)
	City-level		Firm-level	City-level	
Dep. Var.:	COD Emissio	n (1,000 tons)	COD Emission (ton)	Firm Entry	Firm Exit
	Panel A: F	Population Share withou	t College Education		
Share of Below College \times Post $_{05}$	0.165***	0.292**	0.358***	0.623**	0.280
	(0.026)	(0.119)	(0.106)	(0.266)	(0.487)
Share of Below College	-0.208				
	(0.141)				
Post ₀₅	-16.426***				
	(2.873)				
	Panel B: Pop	oulation Share without H	ligh School Education		
Share of Below HS $ imes$ Post $_{05}$	0.099***	0.218**	0.232**	0.453**	0.089
	(0.005)	(0.090)	(0.079)	(0.195)	(0.333)
Share of Below HS	-0.213*				
	(0.100)				
Post ₀₅	-9.465***				
	(0.564)				

*** P < 0.01, ** P < 0.05, * P < 0.1

$$(x+y)^3 = (x+y)(x+y)^2$$

$$= (x+y)(x^2 + 2xy + y^2)$$

$$= x^3 + 3x^2y + 3xy^3 + x^3.$$
[1]

$$(x+y)^3 = (x+y)(x+y)^2$$

$$= (x+y)(x^2 + 2xy + y^2)$$

$$= x^3 + 3x^2y + 3xy^3 + x^3.$$
 [2]

To allow an equation to span both columns, use the \begin{figure*}...\end{figure*} environment mentioned above for figures.

Note that the use of the widetext environment for equations is not recommended, and should not be used.

Supporting Information Appendix (SI). Authors should submit SI as a single separate SI Appendix PDF file, combining all text, figures, tables, movie legends, and SI references. PNAS will publish SI uncomposed, as the authors have provided it. Additional details can be found here: policy on SI. The PNAS Overleaf SI template can be found here. Refer to the SI Appendix in the manuscript at an appropriate point in the text. Number supporting figures and tables starting with S1, S2, etc.

Authors who place detailed materials and methods in an SI Appendix must provide sufficient detail in the main text methods to enable a reader to follow the logic of the procedures and results and also must reference the SI methods. If a paper is fundamentally a study of a new method or technique, then the methods must be described completely in the main text.

SI Datasets. Supply .xlsx, .csv, .txt, .rtf, GZ or .pdf files. This file type will be published in raw format and will not be edited or composed.

SI Movies. Supply Audio Video Interleave (avi), Quicktime (mov), Windows Media (wmv), animated GIF (gif), or MPEG-4 Part 14

(mp4) files. Movie legends should be included in the SI Appendix file. All movies should be submitted at the desired reproduction size and length. Movies should be no more than 10MB in size.

Data, Materials, and Software Availability. To allow others to replicate and build on work published in PNAS, authors must make materials, data, and associated protocols, including code and scripts, available to readers in a public repository upon publication. Restrictions on full or partial access to these materials and requests for legal, ethical, and logistical (e.g., size) exceptions must be noted at submission. If requested, these materials must be made available to editors and reviewers during submission for the purpose of evaluating the manuscript. A statement detailing sharing plans will be included in the published article as provided within the submission form. Research datasets, whether original or previously published, must be cited in the references as a condition for publication. Please refer to our full policy.

ACKNOWLEDGMENTS. Please include your acknowledgments here, set in a single paragraph. Please do not include any acknowledgments in the Supporting Information, or anywhere else in the manuscript.

- 1. M Belkin, P Niyogi, Using manifold stucture for partially labeled classification in Advances in neural information processing systems. pp. 929–936 (2002).
- 2. P Bérard, G Besson, S Gallot, Embedding riemannian manifolds by their heat kernel. Geom. & Funct. Analysis GAFA 4, 373-398 (1994).
- 3. RR Coifman, et al., Geometric diffusions as a tool for harmonic analysis and structure definition of data: Diffusion maps. Proc. Natl. Acad. Sci. United States Am. 102, 7426-7431 (2005).
- 4. RJF Thomas, "Enamel defects, well-being and mortality in a medieval Danish village," PhD thesis, Pennsylvania State University, University Park, PA (2003).
- 5. TM Toolan, "Advances in Sliding Window Subspace Tracking," M.Sc. thesis, University of Rhode Island, Kingston, RI (2005).