

Quarto Template for PNAS Submissions

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

Please 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.

template | demo

A word of warning: This template will fail with a “Not in outer par mode” warning if you try to compile it with less than one page of text. The template relies on having a full first page which is styled separately. If you see a warning to the tune of “LaTeX Error: Not in outer par mode.” or referencing `\end{document}`, try writing more or adding filler text and recompiling.

Using this template

If your first paragraph (i.e. with the `\dropcap`) contains a list environment (quote, quotation, theorem, definition, enumerate, itemize...), the line after the list may have some extra indentation. If this is the case, add `\parshape=0` to the end of the list environment. 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.

Author Affiliations. Include department, institution, and complete address, with the ZIP/postal code, for each author. Use lower case letters to match authors with institutions, as shown in the example. PNAS strongly encourages authors to supply an [ORCID identifier](#) for each author. Individual authors must link their ORCID account to their PNAS account 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. Many authors find it useful to organize their manuscripts with the following order of sections: title, author line and affiliations, keywords, abstract, significance statement, introduction, results, discussion, materials and methods, acknowledgments, and references. Other orders and headings are permitted.

Manuscript Length. A standard 6-page article is approximately 4,000 words, 50 references, and 4 medium-size graphical elements (i.e., figures and tables). The preferred length of articles remains at 6 pages, but PNAS will allow articles up to a maximum of 12 pages.

References. References should be cited in numerical order as they appear in text; this will be done automatically via bibtex, e.g. (Belkin and Niyogi 2002) and Toolan (2005). All references cited in the main text should be included in the main manuscript file.

Data Archival. PNAS must be able to archive the data essential to a published article. Where such archiving is not possible, deposition of data in public databases, such as GenBank, ArrayExpress, Protein Data Bank, Unidata, and others outlined in the [Information for Authors](#), is acceptable.

Significance Statement

Authors must submit a 120-word maximum statement about the significance of their research paper written at a level understandable to an undergraduate educated scientist outside their field of speciality. The primary goal of the significance statement is to explain the relevance of the work in broad context to a broad readership. The significance statement appears in the paper itself and is required for all research papers.

Author affiliations: ^aHarvard University, Department of Government, Cambridge, 2138; ^cHarvard University, Department of Statistics, Cambridge, 2138; ^bYale University, Department of Political Science, New Haven, 6511

Please provide details of author contributions here.
Please declare any competing interests here.

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

² To whom correspondence should be addressed.
E-mail: corresponding@email.com

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.

Figures and Tables. Figures can be included using Quarto's syntax, code chunks, or with LaTeX. For simple figures, Quarto syntax is typically easiest. Full details are available in [the Quarto documentation](#).

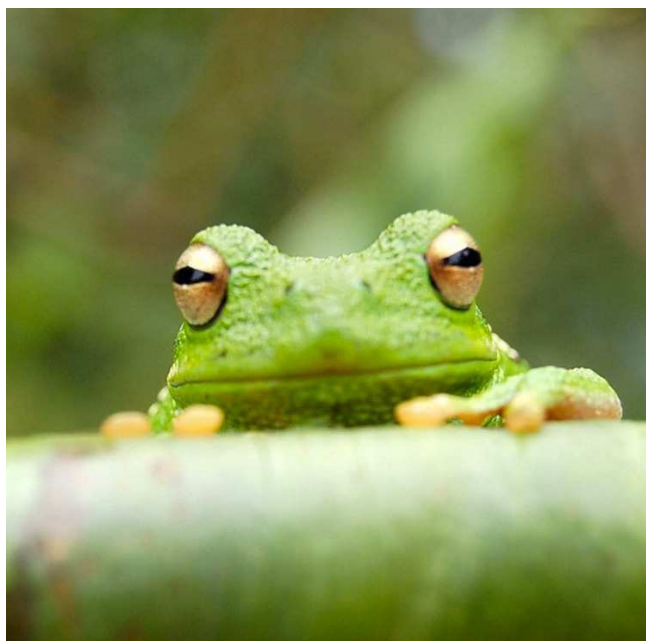


Figure 1. Placeholder image of a frog with a long example legend to show justification setting.

Tables can similarly be included using Quarto's syntax, code chunks, or with LaTeX. In general, you should aim to include tables with Quarto syntax, as this is the most flexible and portable option.

Table 1. Comparison of the fitted potential energy surfaces and *ab initio* benchmark electronic energy calculations. Nomenclature for the TSs refers to the numbered species in the table.

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

Digital Figures. EPS, high-resolution PDF, and PowerPoint are preferred formats for figures that will be used in the main manuscript. Authors may 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 labeled 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 `figure*` environment. Figures wider than one column should be sized to 11.4 cm or 17.8 cm wide. Use `SCfigure*` environment for a wide figure with side legends, such as Figure 2.

In Quarto, we can do these by setting the `fig-env` command to `figure*` or `SCfigure*`

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

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

Material and Methods

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. SI will be published as provided by the authors; it will not be edited or composed. Additional details can be found in the [PNAS Author Center](#). 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, 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 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.

Make the example longer

Try to avoid spacing things such that a full width figure ends on the last page, as this (may) conflict with PNAS's special reference setup.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis sagittis posuere ligula sit amet lacinia. Duis dignissim pellentesque magna, rhoncus congue sapien finibus mollis. Ut

249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310



Figure 2. This legend would be placed at the side of the figure, rather than below it.

$$\begin{aligned}(x + y)^3 &= (x + y)(x + y)^2 \\ &= (x + y)(x^2 + 2xy + y^2) \\ &= x^3 + 3x^2y + 3xy^2 + y^3.\end{aligned}\tag{1}$$

eu sem laoreet, vehicula ipsum in, convallis erat. Vestibulum magna sem, blandit pulvinar augue sit amet, auctor malesuada sapien. Nullam faucibus leo eget eros hendrerit, non laoreet ipsum lacinia. Curabitur cursus diam elit, non tempus ante volutpat a. Quisque hendrerit blandit purus non fringilla. Integer sit amet elit viverra ante dapibus semper. Vestibulum viverra rutrum enim, at luctus enim posuere eu. Orci varius natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.

Nunc ac dignissim magna. Vestibulum vitae egestas elit. Proin feugiat leo quis ante condimentum, eu ornare mauris feugiat. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris cursus laoreet ex, dignissim bibendum est posuere iaculis. Suspendisse et maximus elit. In fringilla gravida ornare. Aenean id lectus pulvinar, sagittis felis nec, rutrum risus. Nam vel neque eu arcu blandit fringilla et in quam. Aliquam luctus est sit amet vestibulum eleifend. Phasellus elementum sagittis molestie. Proin tempor lorem arcu, at condimentum purus volutpat eu. Fusce et pellentesque ligula. Pellentesque id tellus at erat luctus fringilla. Suspendisse potenti.

Etiam maximus accumsan gravida. Maecenas at nunc dignissim, euismod enim ac, bibendum ipsum. Maecenas vehicula velit in nisl aliquet ultricies. Nam eget massa interdum, maximus arcu vel, pretium erat. Maecenas sit amet tempor purus, vitae aliquet nunc. Vivamus cursus urna velit, eleifend dictum magna laoreet ut. Duis eu erat mollis, blandit magna id, tincidunt ipsum. Integer massa nibh, commodo eu ex vel, venenatis efficitur ligula. Integer convallis lacus elit, maximus eleifend lacus ornare ac. Vestibulum scelerisque viverra urna id lacinia. Vestibulum ante ipsum primis in

faucibus orci luctus et ultrices posuere cubilia curae; Aenean eget enim at diam bibendum tincidunt eu non purus. Nullam id magna ultrices, sodales metus viverra, tempus turpis. Duis ornare ex ac iaculis pretium. Maecenas sagittis odio id erat pharetra, sit amet consectetur quam sollicitudin. Vivamus pharetra quam purus, nec sagittis risus pretium at. Nullam feugiat, turpis ac accumsan interdum, sem tellus blandit neque, id vulputate diam quam semper nisl. Donec sit amet enim at neque porttitor aliquet. Phasellus facilisis nulla eget placerat eleifend. Vestibulum non egestas eros, eget lobortis ipsum. Nulla rutrum massa eget enim aliquam, id porttitor erat luctus. Nunc sagittis quis eros eu sagittis. Pellentesque dictum, erat at pellentesque sollicitudin, justo augue pulvinar metus, quis rutrum est mi nec felis. Vestibulum efficitur mi lorem, at elementum purus tincidunt a. Aliquam finibus enim magna, vitae pellentesque erat faucibus at. Nulla mauris tellus, imperdiet id lobortis et, dignissim condimentum ipsum. Morbi nulla orci, varius at aliquet sed, facilisis id tortor. Donec ut urna nisi.

Aenean placerat luctus tortor vitae molestie. Nulla at aliquet nulla. Sed efficitur tellus orci, sed fringilla lectus laoreet eget. Vivamus maximus quam sit amet arcu dignissim, sed accumsan massa ullamcorper. Sed iaculis tincidunt feugiat. Nulla in est at nunc ultricies dictum ut vitae nunc. Aenean convallis vel diam at malesuada. Suspendisse arcu libero, vehicula tempus ultrices a, placerat sit amet tortor. Sed dictum id nulla commodo mattis. Aliquam mollis, nunc eu tristique faucibus, purus lacus tincidunt nulla, ac pretium lorem nunc ut enim. Curabitur eget mattis nisl, vitae sodales augue. Nam felis massa, bibendum sit amet nulla vel,

311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372

373 vulputate rutrum lacus. Aenean convallis odio pharetra nulla
374 mattis consequat.
375 Ut ut condimentum augue, nec eleifend nisl. Sed facilis
376 egestas odio ac pretium. Pellentesque consequat magna
377 sed venenatis sagittis. Vivamus feugiat lobortis magna
378 vitae accumsan. Pellentesque euismod malesuada hendrerit.
379 Ut non mauris non arcu condimentum sodales vitae vitae
380 dolor. Nullam dapibus, velit eget lacinia rutrum, ipsum justo
381 malesuada odio, et lobortis sapien magna vel lacus. Nulla
382 purus neque, hendrerit non malesuada eget, mattis vel erat.
383 Suspendisse potenti.
384 Nullam dapibus cursus dolor sit amet consequat. Nulla
385 facilisi. Curabitur vel nulla non magna lacinia tincidunt. Duis
386 porttitor quam leo, et blandit velit efficitur ut. Etiam auctor
387 tincidunt porttitor. Phasellus sed accumsan mi. Fusce ut erat
388 du. Suspendisse eu augue eget turpis condimentum finibus
389 eu non lorem. Donec finibus eros eu ante condimentum,
390 sed pharetra sapien sagittis. Phasellus non dolor ac ante
391 mollis auctor nec et sapien. Pellentesque vulputate at nisi eu
392 tincidunt. Vestibulum at dolor aliquam, hendrerit purus eu,
393 eleifend massa. Morbi consectetur eros id tincidunt gravida.
394 Fusce ut enim quis orci hendrerit lacinia sed vitae enim.
395 Nulla eget cursus ipsum. Vivamus porttitor leo diam, sed
396 volutpat lectus facilis sit amet. Maecenas et pulvinar metus.
397 Ut at dignissim tellus. In in tincidunt elit. Etiam vulputate
398 lobortis arcu, vel faucibus leo lobortis ac. Aliquam erat

401 Belkin, Mikhail, and Partha Niyogi. 2002. "Using Manifold
402 Structure for Partially Labeled Classification." *Advances*
403 *in Neural Information Processing Systems*, 929–36.
404

405 Bérard, Pierre, Gérard Besson, and Sylvain Gallot. 1994.
406 "Embedding Riemannian Manifolds by Their Heat Kernel."
407 *Geometric & Functional Analysis GAFA* 4 (4): 373–98.
408
409
410

volutpat. In interdum orci ac est euismod euismod. Nunc
eleifend tristique risus, at lacinia odio commodo in. Sed
aliquet ligula odio, sed tempor neque ultricies sit amet.
Etiam quis tortor luctus, pellentesque ante a, finibus dolor.
Phasellus in nibh et magna pulvinar malesuada. Ut nisl ex,
sagittis at sollicitudin et, sollicitudin id nunc. In id porta
urna. Proin porta dolor dolor, vel dapibus nisi lacinia in.
Pellentesque ante mauris, ornare non euismod a, fermentum
ut sapien. Proin sed vehicula enim. Aliquam tortor odio,
vestibulum vitae odio in, tempor molestie justo. Praesent
maximus lacus nec leo maximus blandit.
Maecenas turpis velit, ultricies non elementum vel, luctus
nec nunc. Nulla a diam interdum, faucibus sapien viverra,
finibus metus. Donec non tortor diam. In ut elit aliquet,
bibendum sem et, aliquam tortor. Donec congue, sem at
rhoncus ultrices, nunc augue cursus erat, quis porttitor mauris
libero ut ex. Nullam quis leo urna. Donec faucibus ligula
eget pellentesque interdum. Lorem ipsum dolor sit amet,
consectetur adipiscing elit. Aenean rhoncus interdum erat ut
ultricies. Aenean tempus ex non elit suscipit, quis dignissim
enim efficitur. Proin laoreet enim massa, vitae laoreet nulla
mollis quis.

References

411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496

Coifman, Ronald R, Stephane Lafon, Ann B Lee, et al.
2005. "Geometric Diffusions as a Tool for Harmonic
Analysis and Structure Definition of Data: Diffusion
Maps." *Proceedings of the National Academy of Sciences*
of the United States of America 102 (21): 7426–31.

Thomas, R. J. Ferrell. 2003. "Enamel Defects, Well-Being
and Mortality in a Medieval Danish Village." PhD thesis,
Pennsylvania State University.

Toolan, Timothy M. 2005. "Advances in Sliding Window
Subspace Tracking." Master's thesis, University of Rhode
Island.

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.