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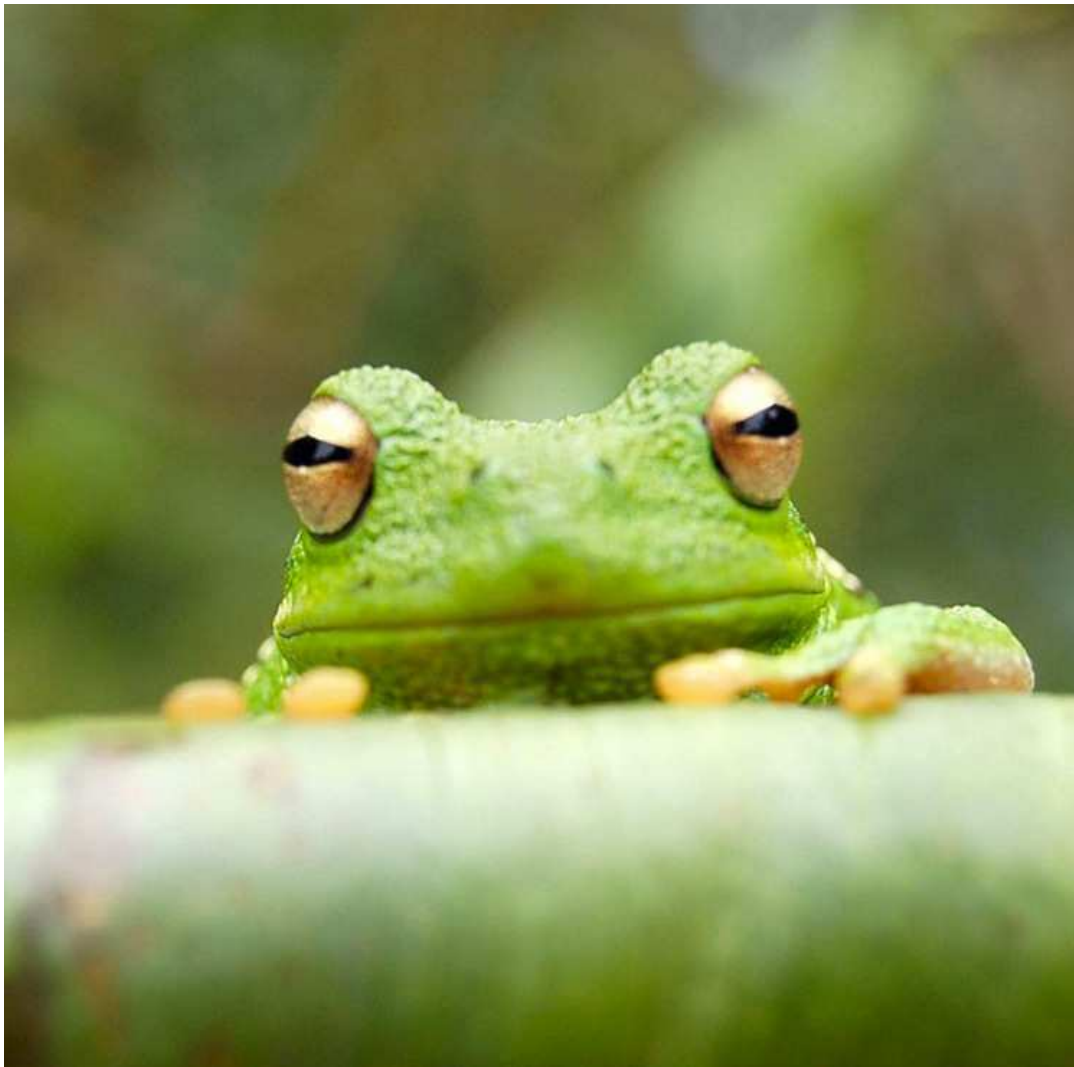
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Please declare any competing interests here.

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

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

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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.

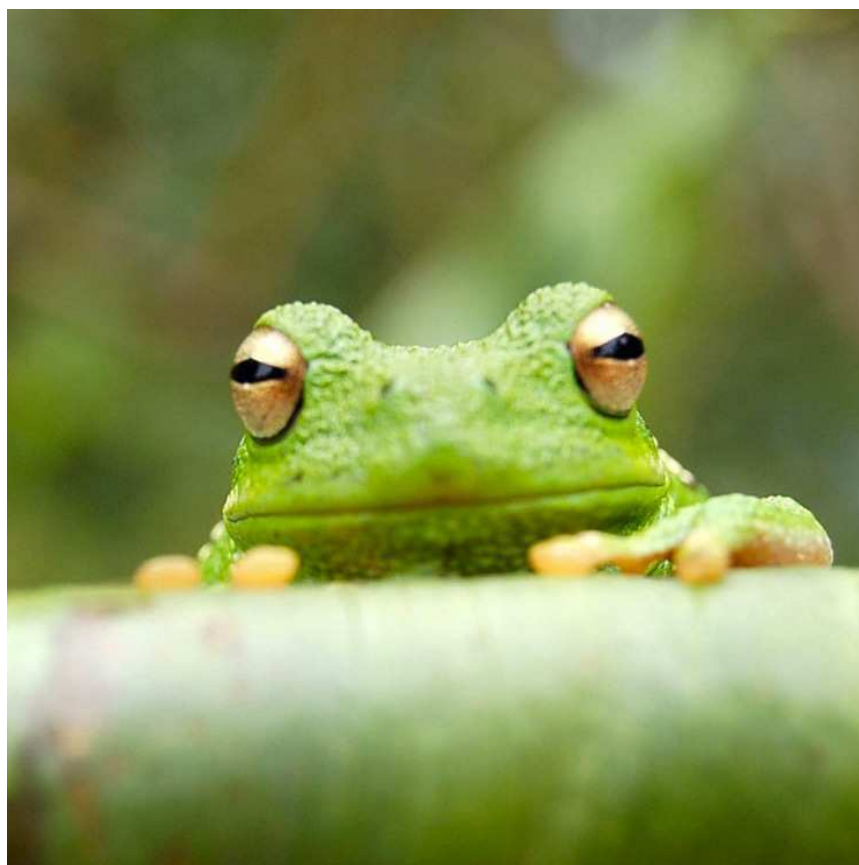
Figure 1 shows an example of how to insert a column-wide figure. To insert a figure wider than one column, please use the `\begin{figure*}...\end{figure*}` environment. Figures wider than one column should be sized to 11.4 cm or 17.8 cm wide. Use `\begin{SCfigure*}...\end{SCfigure*}` for a wide figure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

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



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

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

[1]

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

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

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

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373	<b>ACKNOWLEDGMENTS.</b> Please include your acknowledgments here, set in a single paragraph. Please do not include any acknowledgments	435
374	in the Supporting Information, or anywhere else in the manuscript.	436
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376	1. M Belkin, P Niyogi, Using manifold stucture for partially labeled classification in <i>Advances in neural information processing systems</i> . pp. 929–936 (2002).	438
377	2. P Bérard, G Besson, S Gallot, Embedding riemannian manifolds by their heat kernel. <i>Geom. &amp; Funct. Analysis GAFA</i> <b>4</b> , 373–398 (1994).	439
378	3. RR Coifman, et al., Geometric diffusions as a tool for harmonic analysis and structure definition of data: Diffusion maps. <i>Proc. Natl. Acad. Sci. United States Am.</i> <b>102</b> , 7426–7431 (2005).	440
379	4. RJF Thomas, "Enamel defects, well-being and mortality in a medieval Danish village," PhD thesis, Pennsylvania State University, University Park, PA (2003).	441
380	5. TM Toolan, "Advances in Sliding Window Subspace Tracking," M.Sc. thesis, University of Rhode Island, Kingston, RI (2005).	442
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