Differential Cross Section Measurements for Elastic Scattering of Electrons from Heavy Atoms and Ions

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Abstract

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Keywords: This; Is; Where; The; Keywords; Go.

1 Introduction

Welcome to the VOLCANICA research article LaTeX template. If you are already comfortable using LaTeX and BibTeX , you can go ahead and use the blank template (blank-template.tex). (If you're editing on Overleaf, you might want to change the "Main document" in Menu > Settings. You can also right-click to rename "blank-template" to something more relevant)

Otherwise, this template contains a bit more information to help you get started using LaTeX as a word processing software. Any issues or questions, email editor@jvolcanica.org.

Volcanica uses three levels of headings, which can be defined using "section", "subsection", and "subsubsection" commands.

2 A section

This is the top level ("section"). Typically we recommend an Introduction > Methods > Results > Discussion > Conclusions structure, but feel free to be flexible here.

2.1 A subsection

This is another level ("subsection").

2.1.1 *A third level*

This is a third-level section ("sub-subsection"). Notice that the sections have been given a label: this means we can refer to them later, using "autoref", e.g. Section 2 or Section 2.1. The autoref command can also be used to refer to figures, tables, and other items. Here's an example of how to include a single-column-width figure:

Figure references look like this: Figure 1. Sometimes you might want to include a wider figure; the command for this looks slightly different:

If you want to use mathematical symbols and short in-line equations, just wrap them in dollar signs: $mx + c$. Larger equations go in their own kind of special environment called, unsurprisingly, equation.

$$S(\omega) = \frac{\alpha g^2}{\omega^5} \exp\left[-0.74\left\{\frac{\omega U_\omega 19.5}{g}\right\}^{-4}\right] \tag{1}$$

These can also be labelled and referred to (see Equation 1 above). Subequations can also be typeset, as shown in Equation 2 below.

$$v_x = v_0 \cos(\theta) \exp\left(-\frac{g}{v_t}t\right) \tag{2a}$$

$$v_y = v_0 \sin(\theta) \exp\left(-\frac{g}{v_t}t\right) - v_t\left[1 - \exp\left(-\frac{g}{v_t}t\right)\right]. \tag{2b}$$

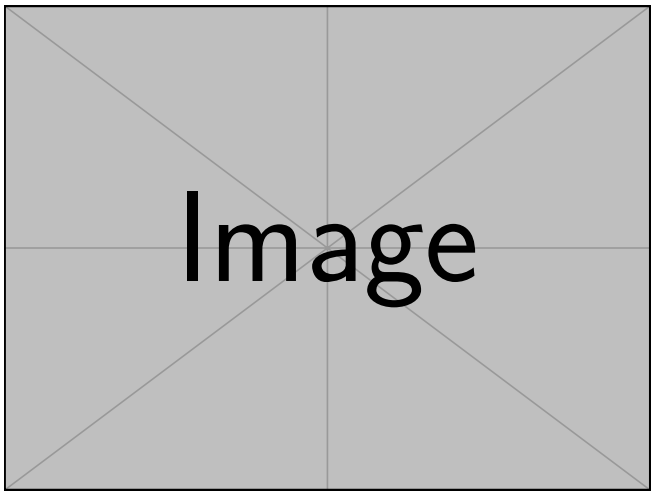

Figure 1: This is where a descriptive caption goes. A good idea is to include all your figures in a specific folder (e.g. "media") within the Overleaf project (or the same directory as the .tex file, if you are editing offline). The path to the figures then looks like "media/figure-1.pdf". PDF, SVG, or other vector graphics are preferred formats, but high-resolution image formats (e.g. PNG or JPG) are also acceptable.

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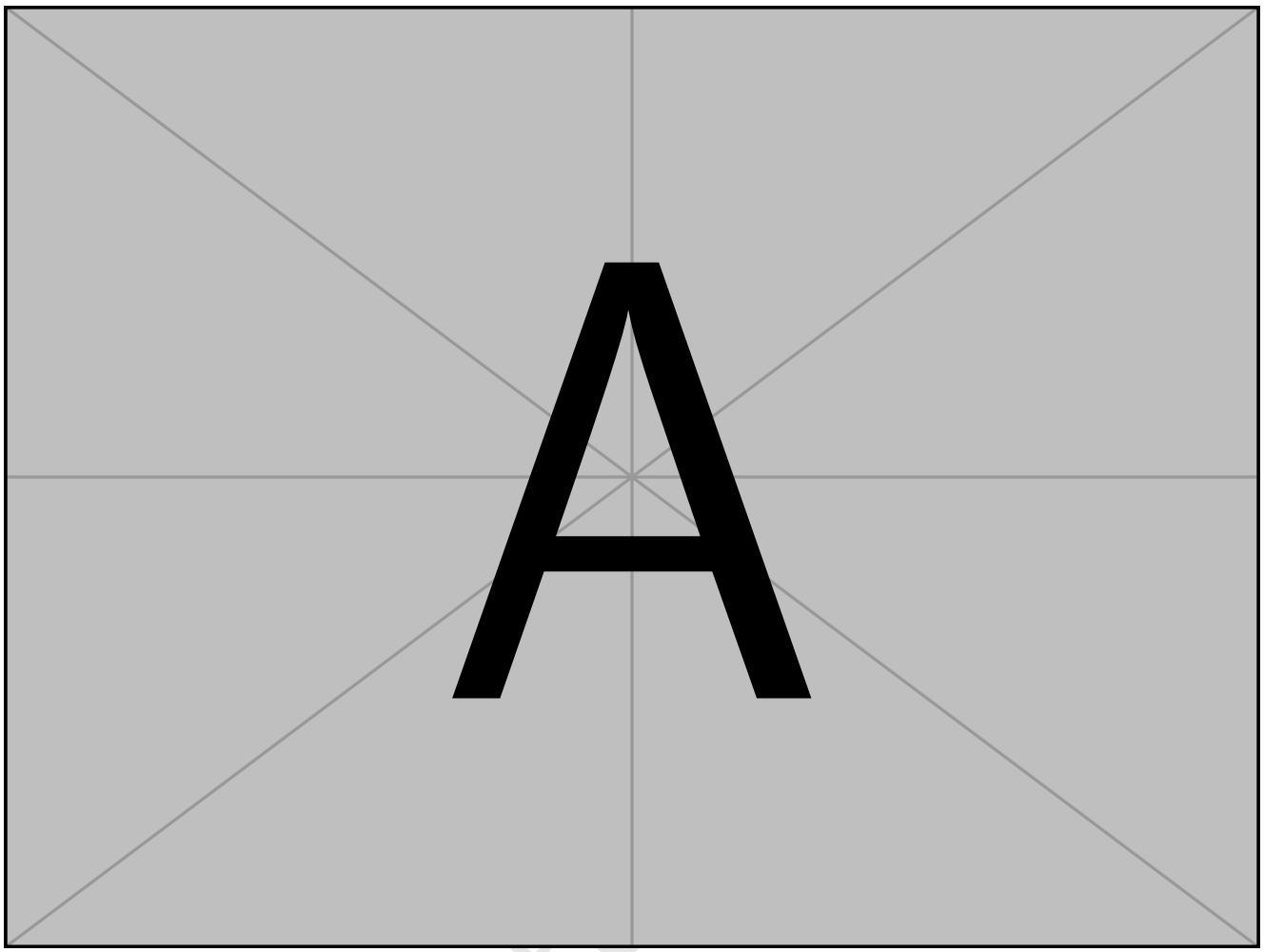

Figure 2: This is where a descriptive caption goes.

3 Tables

Here is a simple table.

Table 1: Caption goes up here.

Parameter 1	Parameter 2	Parameter 3
3.8	0.003	15.91
1.4	0.001	12.12
21	0.018	81.43
0.8	0.004	1.8
4.0	0.004	14.76
2.1	0.003	13.31
3.7	0.006	16.48
119	0.02	83.01
3.0	0.001	15.2
2.9	0.002	11.01

Tables can become quite complex. A great resource is `https://www.tablesgenerator.com/latex_tables`, where you can paste table data, or load in an excel file, then copy the LaTeX output. Note that for two-column tables, the "table*" environment should be used, rather than the unstarred "table" environment.

4 Citations

To cite other articles, you need a .bib file. This is a separate file (in the same folder as the .tex and .cls files) which contains all the necessary bibliographic information. Two good resources compiling a .bib file are `https://www.doi2bib.org/` and `https://scipython.com/apps/doi2bib/`. Both of these allow you to enter an article's DOI number and retrieve the bibtex entry (which you can copy/paste into the .bib file). Bibtex entries can also be obtained via Google Scholar, by clicking "cite" > "bibtex". However, GS *doesn't* include DOI numbers, so you may want to add these manually. Many reference managers (e.g. Zotero) allow authors to export a .bib file. Once you have a .bib file, citations are simple, both in-line, such as Farquharson and Wadsworth [2018], or in parentheses [Kavanagh et al. 2022]. The reference list will be formatted and printed automatically. Note that you can refer to multiple citations at once [e.g. Siebert et al. 2015; Kavanagh et al. 2022, among others].

5 Useful commands

If you are using a lot of isotopes or isotopic ratios, you can use the commands "iso" and "isorat", which give outputs like ^{14}C and $^{18}O/^{16}O$. Chemistry can be typeset using the "ch" command, giving output like H_2SO_4 or $[AgCl_2]^-$, or even $KCr(SO_4)_2 \cdot 12\,H_2O$. There is also an "okina" command, as in Hawai'i. Here are some Greek letters: α, β, ϕ, Ω. If we use software, like `Eject!`, it will look like this, using the command "software" or its alias "sw". Same goes for `DensityX`, `ImageJ`, and `VolCalc`. SI units can be typeset using the "SI" command (SIvalueunit), where unit is typed out: $2600\,\mathrm{kg\,m^{-3}}$. If there are symbols or commands you'd like to see incorporated in our templates, please reach out to farquharson@jvolcanica.org.

Author Contributions

Who did what?

Acknowledgements

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Data Availability

Links to data repositories, and/or a statement regarding the availability of data here. Authors are encouraged to make data freely available wherever possible: we recommend free repositories such as Zenodo and FigShare in order to facilitate transparent open access. We recommend versioning, archiving, and sharing code via GitHub/Zenodo; see: https://docs.github.com/en/repositories/archiving-a-github-repository/referencing-and-citing-content.

References

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