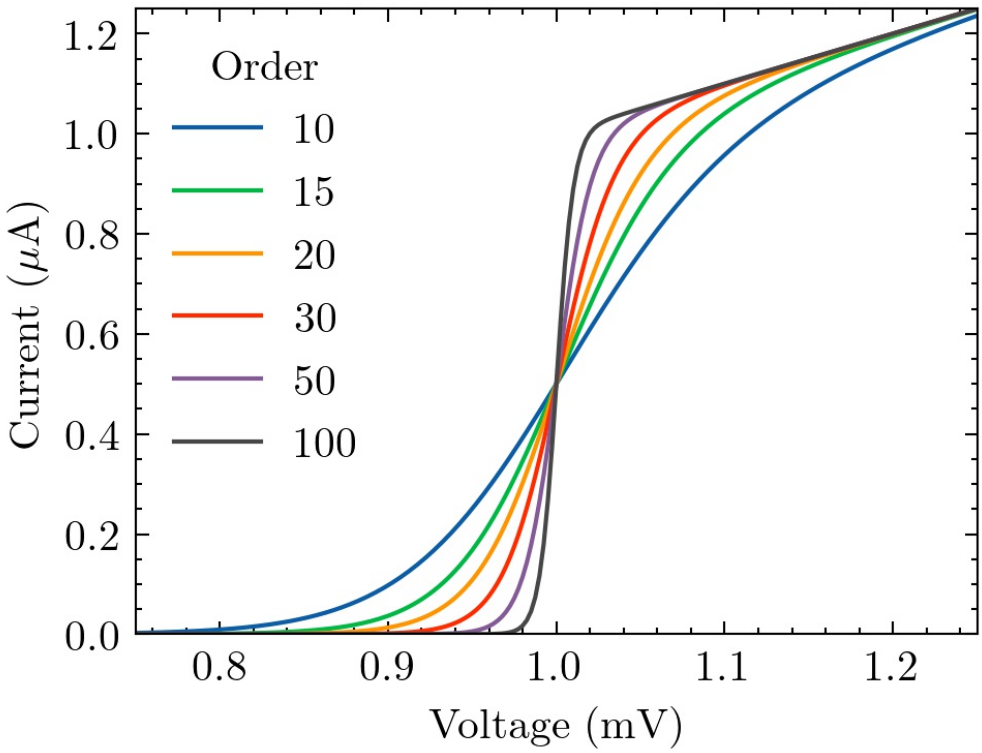
Science Plots

Matplotlib styles for scientific figures

This repo has Matplotlib styles to format your figures for scientific papers, presentations and theses.



You can find the full gallery of included styles here.

Getting Started

The easiest way to install SciencePlots is by using `pip`:

```
# to install the lastest release (from PyPI)
pip install SciencePlots

# to install the latest commit (from GitHub)
pip install git+https://github.com/garrettj403/SciencePlots

# to clone and install from a local copy
git clone https://github.com/garrettj403/SciencePlots.git
cd SciencePlots
pip install -e .
```

The pip installation will automatically move all of the Matplotlib style files `*.mplstyle` into the appropriate directory on your computer.

Notes:

- SciencePlots requires Latex (see Latex installation instructions).
- If you would like to use CJK fonts, you will need to install these font separately (see CJK font installation instructions).

Please see the FAQ for more information and troubleshooting.

Using the Styles

`"science"` is the primary style in this repo. Whenever you want to use it, simply add the following to the top of your python script:

```
import matplotlib.pyplot as plt

plt.style.use('science')
```

You can also combine multiple styles together by:

```
plt.style.use(['science','ieee'])
```

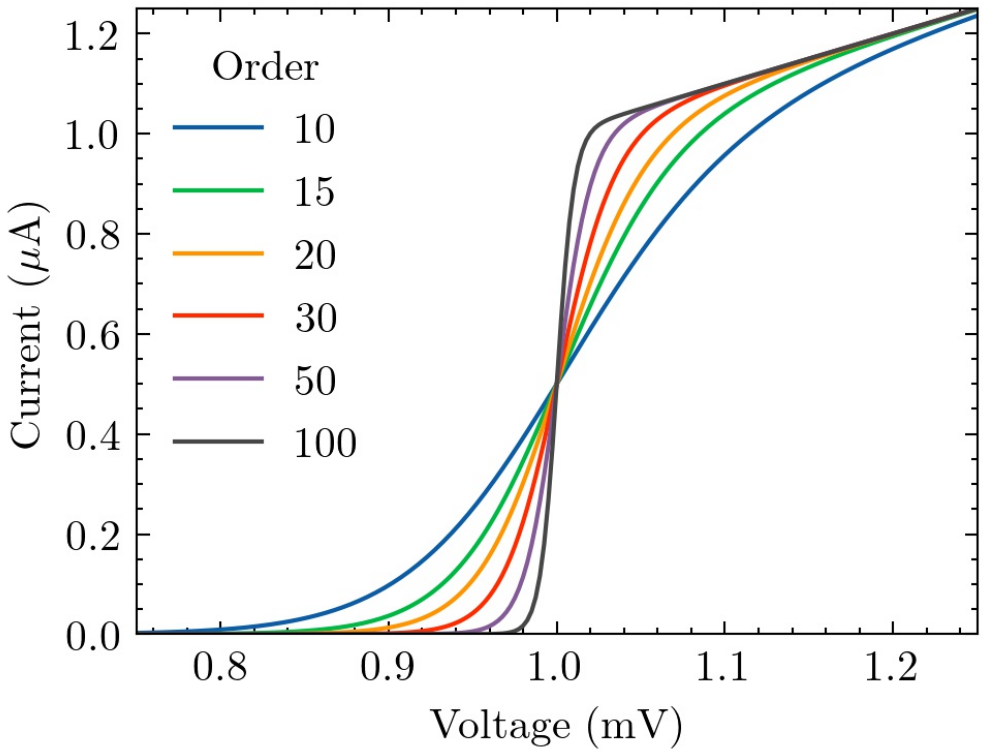
In this case, the `ieee` style will override some of the parameters from the `science` style in order to configure the plot for IEEE papers (column width, fontsizes, etc.).

To use any of the styles temporarily, you can use:

```
with plt.style.context('science'):
    plt.figure()
    plt.plot(x, y)
    plt.show()
```

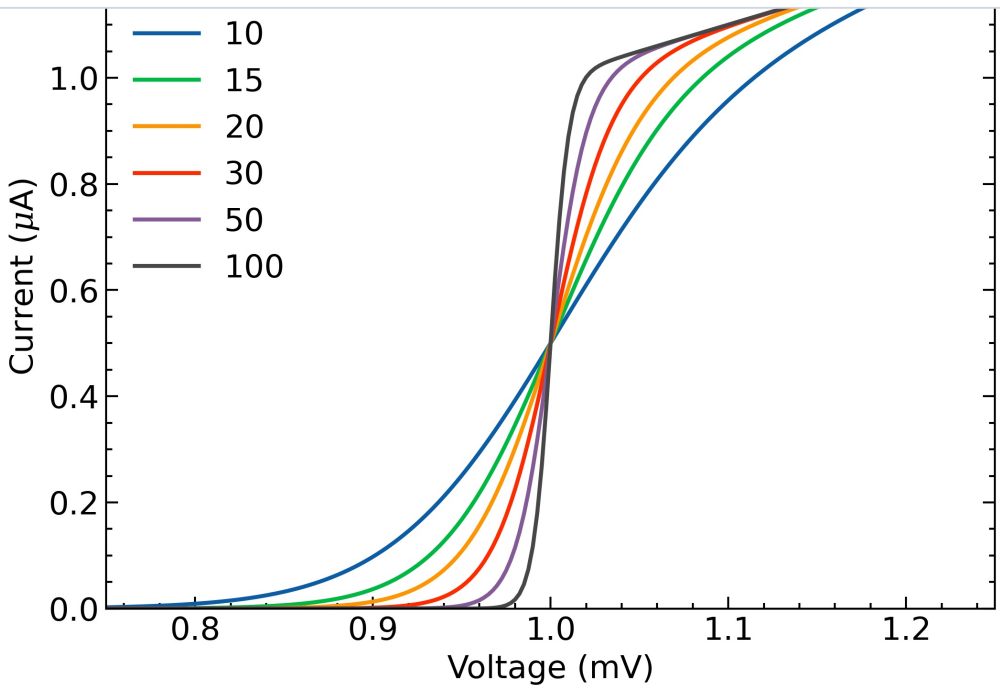
Examples

The basic `science` style is shown below:



It can be cascaded with other styles to fine-tune the appearance. For example, the `science + notebook` styles (intended for Jupyter notebooks):

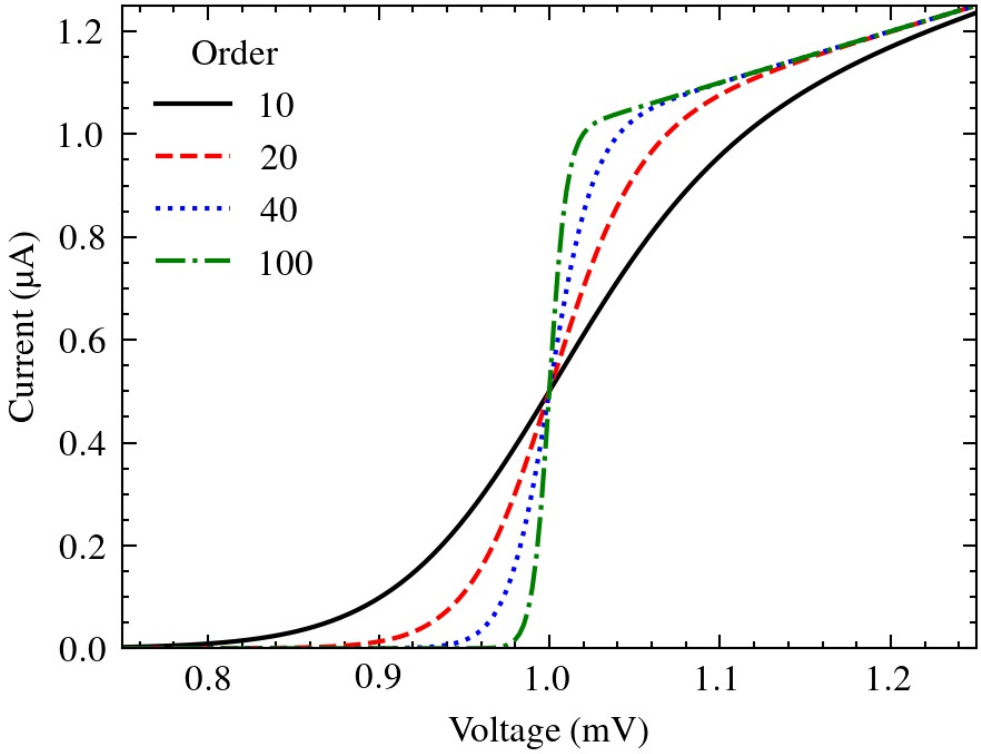
README.md



Please see the project Wiki for a full list of available styles.

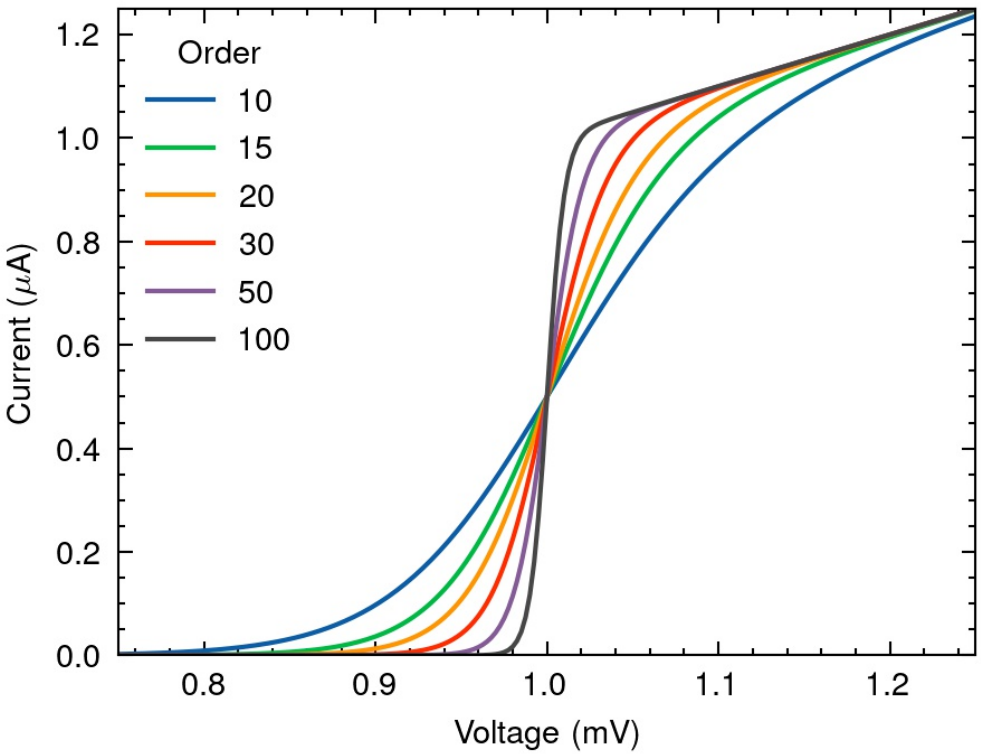
Specific Styles for Academic Journals

The `science + ieee` styles for IEEE papers:



- IEEE requires figures to be readable when printed in black and white. The `ieee` style also sets the figure width to fit within one column of an IEEE paper.

The `science + nature` styles for Nature articles:

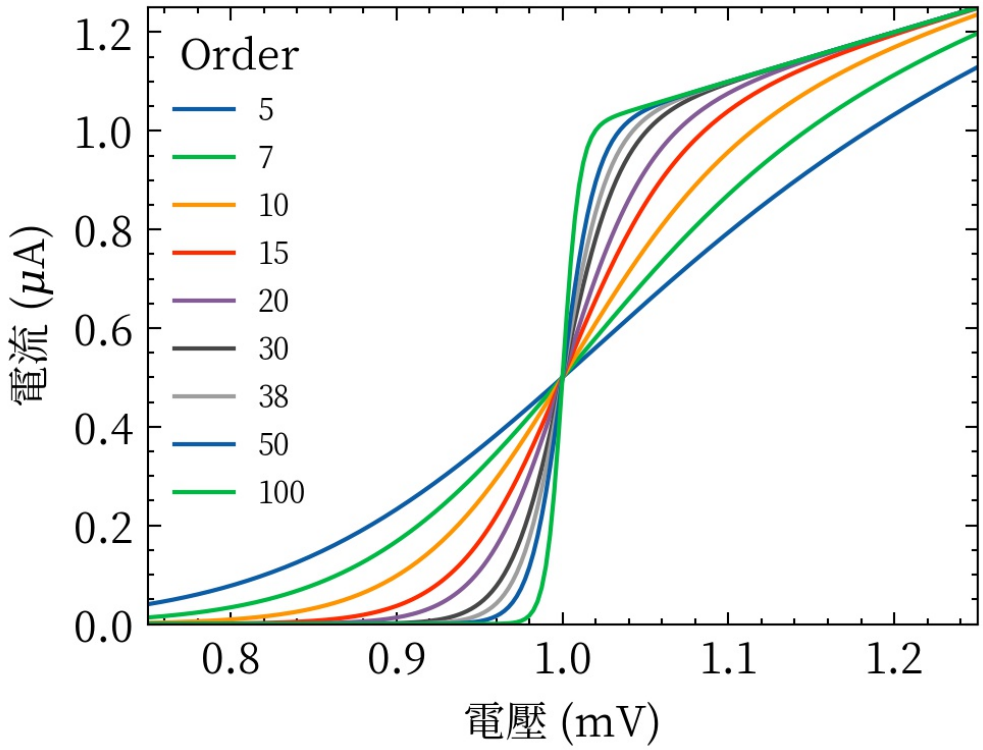


- Nature recommends sans-serif fonts.

Other languages

SciencePlots currently supports traditional Chinese, simplified Chinese, Japanese, Korean and Russian.

Example: Traditional Chinese (`science + no-latex + cjk-tc-font`):

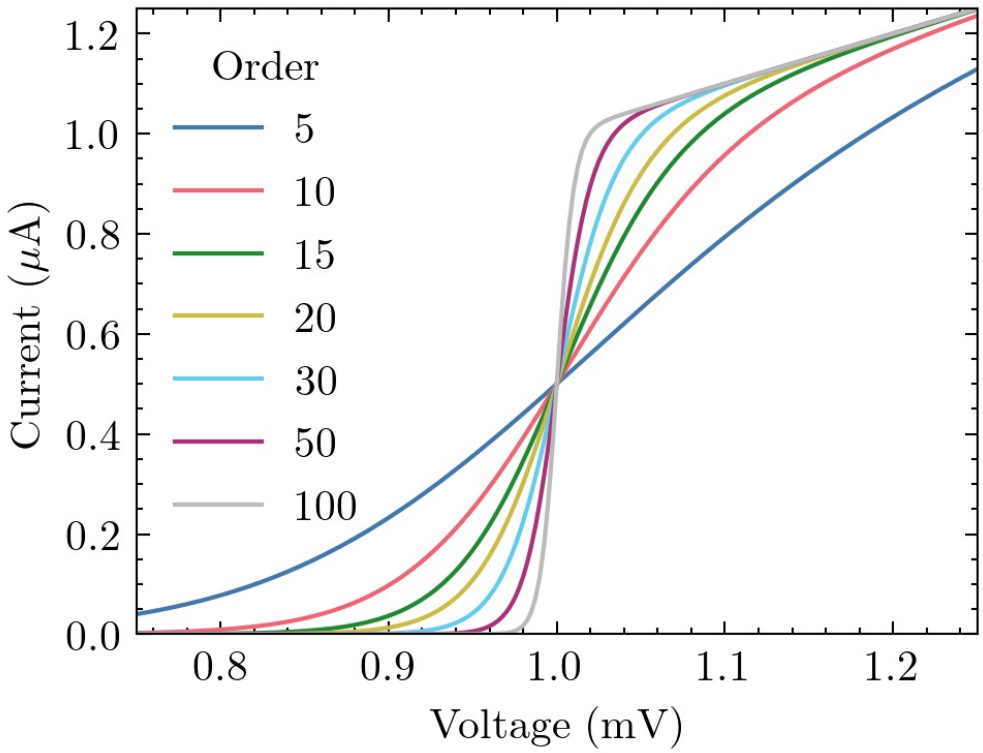


See the FAQ for information on installing CJK fonts.

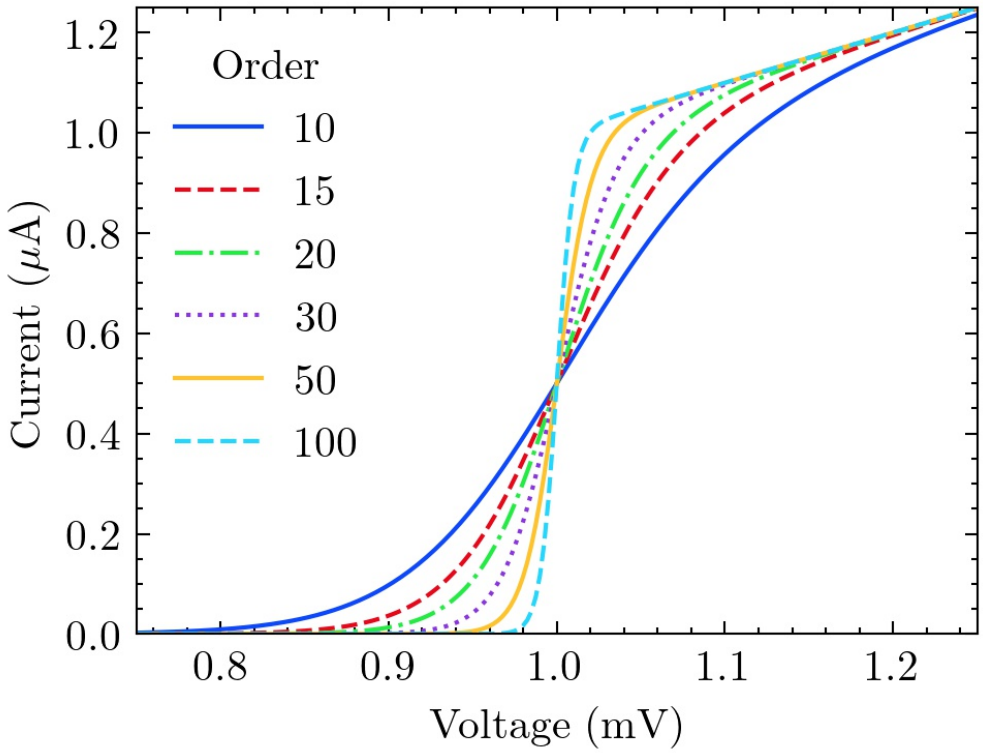
Other color cycles

SciencePlots comes with a variety of different color cycles. For a full list, see the project Wiki. Two examples are shown below.

The `bright` color cycle (color blind safe):



The `high-vis` color cycle:



Help and Contributing

Please feel free to contribute to the SciencePlots repo! For example, it would be good to add new styles for different journals and add new color cycles. Before starting a new style or making any changes, please create an issue through the GitHub issue tracker. That way we can discuss if the changes are necessary and the best approach.

If you need any help with SciencePlots, please first check the FAQ and search through the previous GitHub issues. If you can't find an answer, create a new issue through the GitHub issue tracker.

You can checkout Matplotlib's documentation for more information on plotting settings.

FAQ

You can find the FAQ in the project Wiki.

SciencePlots in Academic Papers

The following papers use `SciencePlots`:

- J. Garrett, and E. Tong, "Measuring Cryogenic Waveguide Loss in the Terahertz Regime," *IEEE Trans. THz Sci. Technol.*, vol. 12, no. 3, pp. 293-299, May 2022.
- Y. Liu, X. Liu, and Y. Sun, "QGrain: An open-source and easy-to-use software for the comprehensive analysis of grain size distributions", *Sedimentary Geology*, vol. 423, 105980, Aug. 2021.
- J. Garrett, and E. Tong, "A Dispersion-Compensated Algorithm for the Analysis of Electromagnetic Waveguides," *IEEE Signal Process. Lett.*, vol. 28, pp. 1175-1179, Jun. 2021.
- G. Jegannathan, *et al.*, "Current-Assisted SPAD with Improved p-n Junction and Enhanced NIR Performance", *Sensors*, Dec 2020. (open access)
- H. Tian, *et al.*, "ivis Dimensionality Reduction Framework for Biomacromolecular Simulations", *J. Chem. Inf. Model.*, Aug 2020. (open access)
- P. Stoltz, *et al.*, "A new simple algorithm for space charge limited emission," *Phys. Plasmas*, vol. 27, no. 9, pp. 093103, Sep. 2020. (open access)
- J. Garrett, *et al.*, "A Nonlinear Transmission Line Model for Simulating Distributed SIS Frequency Multipliers," *IEEE Trans. THz Sci. Technol.*, vol. 10, no. 3, pp. 246-255, May 2020. (open access)
- J. Garrett, *et al.*, "Simulating the Behavior of a 230 GHz SIS Mixer Using Multi-Tone Spectral Domain Analysis," *IEEE Trans. THz Sci. Technol.*, vol. 9, no. 9, pp. 540-548, Nov. 2019. (open access)
- J. Garrett, *et al.*, "A Compact and Easy to Fabricate E-plane Waveguide Bend," *IEEE Microw. Wireless Compon. Lett.*, vol. 29, no. 8, pp. 529-531, Aug. 2019. (open access)

- J. Garrett, "A 230 GHz Focal Plane Array Using a Wide IF Bandwidth SIS Receiver," DPhil thesis, University of Oxford, Oxford, UK, 2018. (open access)

If you use `SciencePlots` in your paper/thesis, feel free to add it to the list!

Citing SciencePlots

You don't have to cite SciencePlots if you use it but it's nice if you do:

```
@article{SciencePlots,
  author       = {John D. Garrett},
  title        = {{garrettj403/SciencePlots}},
  month        = sep,
  year         = 2021,
  publisher    = {Zenodo},
  version      = {1.0.9},
  doi          = {10.5281/zenodo.4106649},
  url          = {http://doi.org/10.5281/zenodo.4106649}
}
```

Releases 6

SciencePlots (v1.0.9) Latest
on Sep 17, 2021

+ 5 releases

Used by 142


+ 134

Contributors 7

Languages

- **Python** 100.0%