Some tips related to LaTeX & Python

Kristian Fredrik *CF* Klepp Thorbjørnsen

February 14, 2022

Abstract

I just thought I would share some tips and tricks related to LaTeXand Python.

Contents

1 Cross referencing

```
\usepackage[hidelinks]{hyperref}
\usepackage{cleveref}
```

2 Chemistry and units

```
\usepackage{mhchem}
\usepackage{chemstyle}
```

3 Floats in general

Just ignore the position of floats until that is really the last ting for you to change.

4 Figures folder structure and formats

By organizing your figures into folders, like ./figs/pics/[1], ./figs/pdf/, ./figs/pgf/, ./figs/png/, ./figs/tikz/, and add

```
\graphicspath{{./figs/pics/}{./figs/tikz/}}
```

to your preamble. This will tell tex to look for figures in ./figs/pics/ and ./figs/tikz/. You can then either supply

```
\includegraphics{example_1}
```

where tex will look for some_fig in ./figs/pics/ and ./figs/tikz/.

```
\includegraphics{./figs/pdf/example_1}
```

Figure 1 was included with

```
\begin{figure}[htbp]
    \includegraphics[width=0.7\textwidth]{example_1}
    \caption{Example figure included without file extension and file path.}
    \label{figures:fig:example:1}
\end{figure}
```

You can still specify the absolute path if you like, but the abov example makes changing from .tikz to .png really easy.

In fig. 2, the absolute paths are specified, and the code looks like

```
\begin{figure}
    \begin{subfigure}[t]{0.45\textwidth}
    \includegraphics[width=\linewidth]{./figs/png/example_1}
    \caption{.png}
    \label{figures:fig:exmaple:2:png}
    \end{subfigure}
    \hfill
    \begin{subfigure}[t]{0.45\textwidth}
```

[1] Pictures, examples, etc

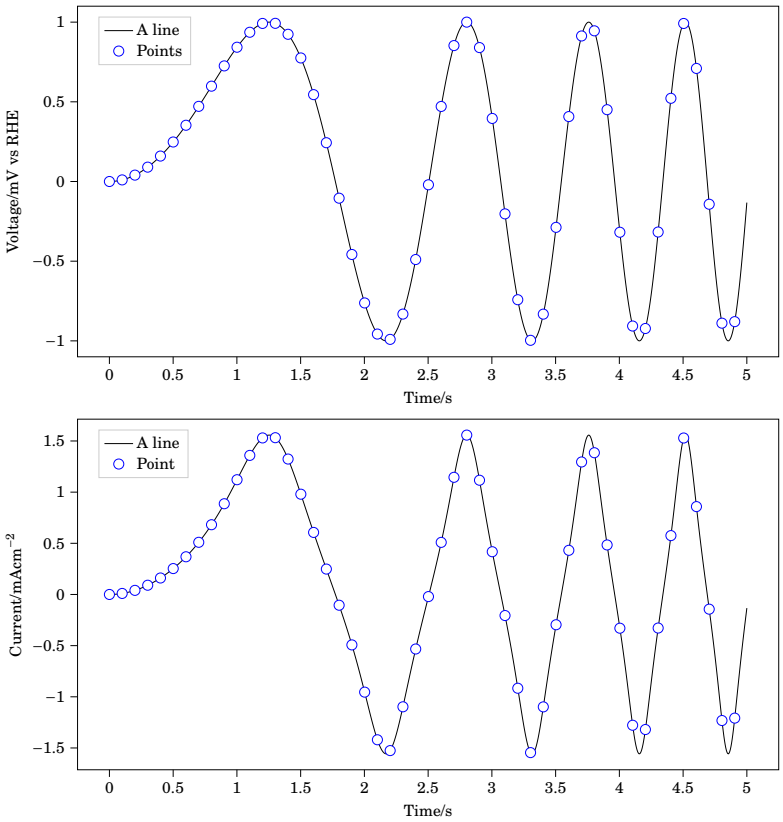


Figure 1: Example figure included without file extension and file path.

```
        \includegraphics[width=\linewidth]{./figs/pdf/example_1}
        \caption{.pdf}
        \label{figures:fig:exmaple:2:pdf}
        \end{subfigure}
        %
        \begin{subfigure}[t]{0.45\textwidth}
        \resizebox*{\linewidth}{!}{\input{./figs/pgf/example_1.pgf}}
        \caption{.pgf}
        \label{figures:fig:exmaple:2:pgf}
         \end{subfigure}
        \hfill
        \begin{subfigure}[t]{0.45\textwidth}
        \includegraphics[width=\linewidth]{./figs/tikz/example_1}
        \caption{.tikz}
        \label{figures:fig:exmaple:2:tikz}
        \end{subfigure}
        \caption{Figures included by specifying file extension.}
        \label{figures:fig:example:2}
    \end{figure}
```

Notice the difference between **??????**, and **??**. The former have been scaled to width, including fonts, while the latter has been scaled in size, while preserving font size, line widths, etc. Actually, fig. 2c was also generated by tex, but the scaling is off. It is not scaled correctly if using includegraphics[2], so the resizebox is the only sensible solution I have found.

5 TikZ externalize

The .tikz image was generated using the *externalize* option.

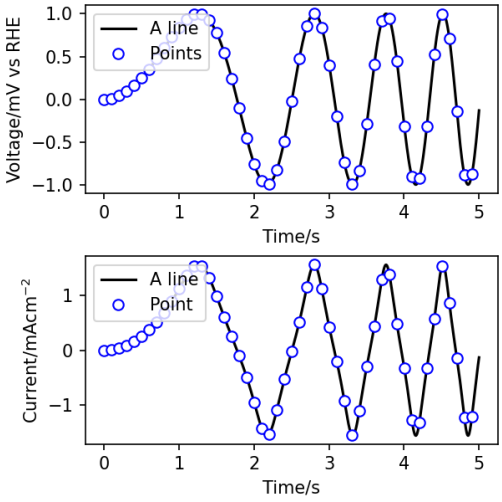
6 PGFplotstable

The figure data i nthe figure was

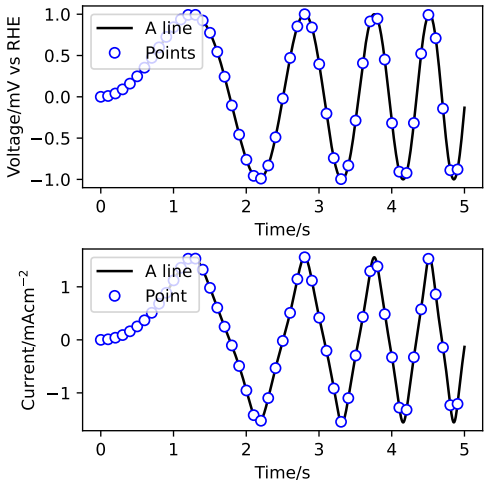
Table 1: Generated with PGFplotstable

No	α	β
0	1.00	1.0
1	1.67	2.0
2	2.33	3.0
3	3.00	4.0

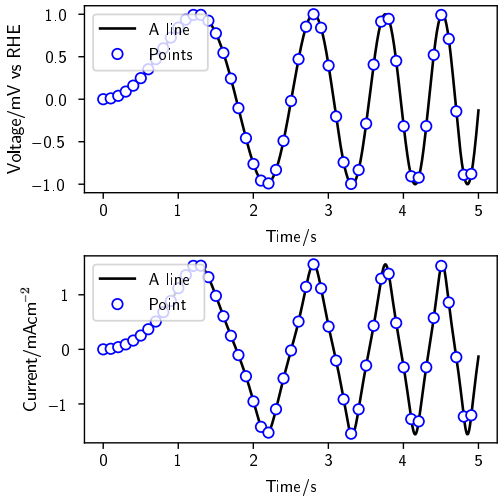
[2]The entire figure becomes messed up



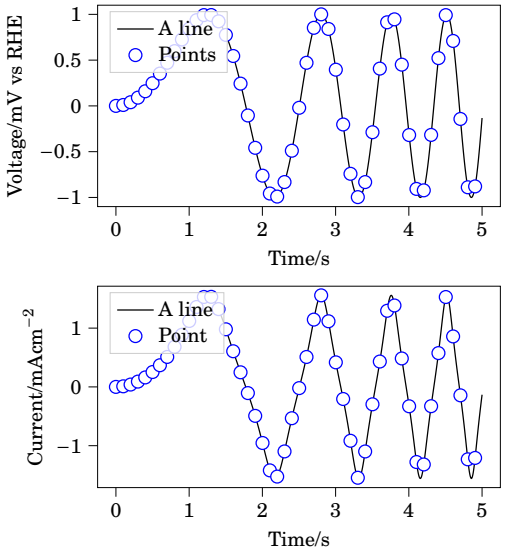
(a) .png



(b) .pdf



(c) .pgf



(d) .tikz

Figure 2: Figures included by specifying file extension.

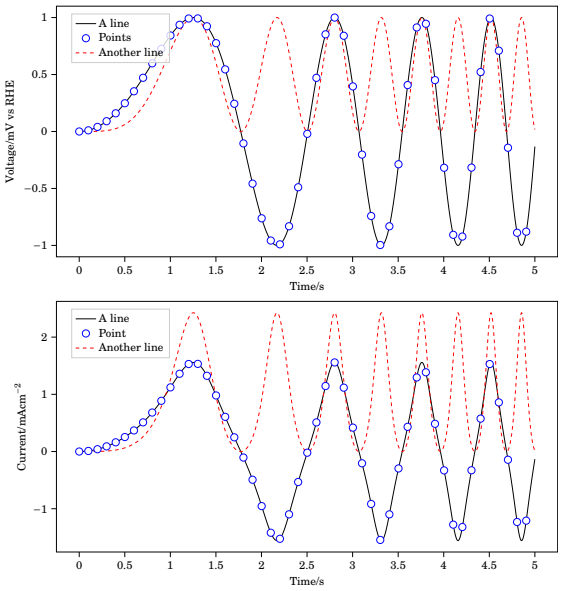


Figure 3: Same plot from tikzfile again