A short presentation on molecules in LaTeX

J. Hammersley

www.overleaf.com

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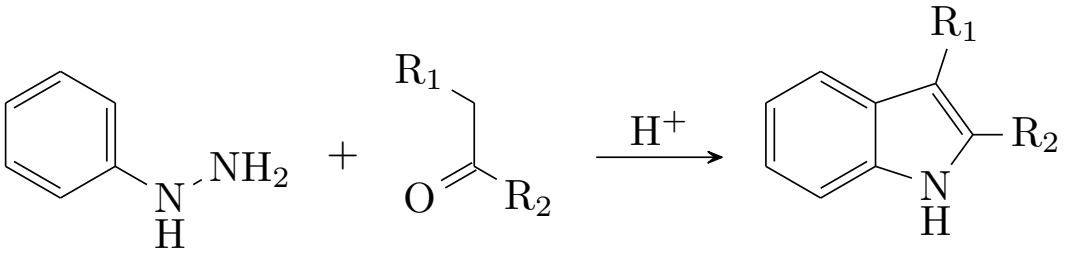
Outline

Introduction

- In these slides we show how Overleaf can be used with standard chemistry packages to easily create professional presentations.
- If you're new to LaTeX, check out our webinars: www.overleaf.com/events/webinars
- You can also find more quick tips and tricks on the help pages at www.overleaf.com/learn



The chemistry packages

We focus on two LaTeX chemistry packages:

The `chemfig` package

This package provides the command which draws molecules. Created by Christian Tellechea, a detailed user guide can be found here:

https://mirror.ox.ac.uk/sites/ctan.org/macros/generic/chemfig/chemfig-en.pdf

The `mhchem` package

The `mhchem` package provides simple commands for typesetting chemical molecular formulae and equations. Created by Martin Hensel, a detailed user guide can be found here:

https://anorien.csc.warwick.ac.uk/mirrors/CTAN/macros/latex/contrib/mhchem/mhchem.pdf

Chemical equations with `mhchem`

- The `mhchem` package lets you write chemical equations in LaTeX with the minimum of effort.
- The example below shows how the standard representation of a reaction (on the left) is created from the simple code on the right:

$\ce{CO2 + C -> 2CO}$ is created with `\ce{CO2 + C -> 2CO}`

- More complicated reactions are still easy to write:

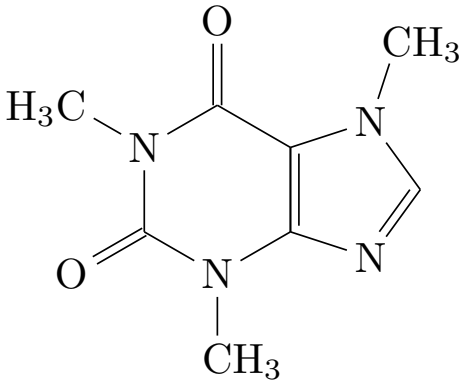
$\ce{SO4^2- + Ba^2+ -> BaSO4 v}$

is created with

`\ce{SO4^2- + Ba^2+ -> BaSO4 v}`

Getting started with some `chemfig` coffee

It's easy to use the `chemfig` package for drawing complex molecules:



This is the caffeine molecule, represented clearly and neatly, and built from a single line of text:

```
\chemfig{*6((=O)-N(-CH_3)-*5(-N=-N(-CH_3)-=)--(=O)-N(-H_3C)-)}
```

If that looks quite daunting, we can learn from simpler molecules. . . how about a single water molecule?

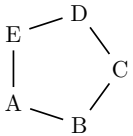
Experiments with water and rings

To see how the `chemfig` package creates the drawings from your code, let us look at the simple water molecule:

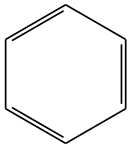
H_2O is created with `\chemfig{H_2O}`

The simple LaTeX code on the right is automatically converted into the molecular formula for water on the left.

Rings are similarly easy to code - consider the examples below:



= `\chemfig{A*5(-B-C-D-E-)}`



= `\chemfig{*6(=-=-=-)}`

Where to go next...

- This short example was designed to introduce you to using Overleaf for scientific presentations.
- This is made possible by the many great packages that have been developed for LaTeX, including the two we focused on here (plus the `Beamer` package used for the overall presentation style).
- For more help on using LaTeX, see the links on the Overleaf help page: www.overleaf.com/help or check out our free introductory webinars: www.overleaf.com/events/webinars.

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Happy LaTeXing!