physics-patch

Patches for physics package and integration of physics
and siunitx packages

Willie Shen (Willie169)

https://github.com/Willie169/physics-patch

Version 1.0, February 13, 2025

1 Introduction

The `physics-patch` package fixes issues in the `physics` package and improves compatibility between `physics` and `siunitx`.
It provides improved versions of `\qty`, `\dv`, and `\pdv` and introduces new macros.

2 Usage

This package requires `xparse`, `etoolbox`, and `amsmath` package.
Optionally, load `physics` and/or `siunitx` before this package.

```
\usepackage{physics} % Optional
\usepackage{siunitx} % Optional
\usepackage{physics-patch}
```

By default, `physics-patch` overrides `\qty` with an improved version. To disable this, use the `nooverride` option:

```
\usepackage[nooverride]{physics-patch}
```

3 Communication Channels

- **Bug tracker:** https://github.com/Willie169/physics-patch/issues.

- **Announcements:** https://github.com/Willie169/physics-patch/releases.

- **Repository:** https://github.com/Willie169/physics-patch.

4 License and Credit

- This package is released under the **LaTeX Project Public License (LPPL) 1.3c.**
  See https://www.latex-project.org/lppl/lppl-1-3c for the details of that license.

- Some parts of this package are modified from the `physics` package, created by **Sergio C. de la Barrera** and licenced under **LPPL 1.3**.
  See https://ctan.org/pkg/physics for the details of that package.

5 List of Commands

`\patchedphysicsquantity` or `\ppqty`	$\ppqty(\typical) \rightarrow (\blacksquare)$	automatic ( ) braces
	$\ppqty(\tall) \rightarrow \left(\blacksquare\right)$	
	$\ppqty(\grande) \rightarrow \left(\blacksquare\right)$	
	$\ppqty[\typical] \rightarrow [\blacksquare]$	automatic [ ] braces
	$\ppqty\|\typical\| \rightarrow [\blacksquare]$	automatic | | braces
	$\ppqty\{\typical\} \rightarrow \{\blacksquare\}$	automatic { } braces
	$\ppqty\big\{\} \rightarrow \big\{\big\}$	manual sizing (works with any of the above bracket types)
	$\ppqty\Big\{\} \rightarrow \Big\{\Big\}$	
	$\ppqty\bigg\{\} \rightarrow \bigg\{\bigg\}$	
	$\ppqty\Bigg\{\} \rightarrow \Bigg\{\Bigg\}$	
`\siqty` if `siunitx` loaded		same as `\SI` in `siunitx`
`\siqty` if `siunitx` not loaded		not defined in this package
`\integratedquantity` or `\iqty` if `siunitx` loaded	`\iqty[]{}{}`	same as `\SI` in `siunitx`
	`\iqty{}{}` same as `\patchedphysicsquantity`	same as `\SI` in `siunitx` same as `\patchedphysicsquantity`
`\integratedquantity` or `\iqty` if `siunitx` not loaded		not defined in this package
`\patchedquantity` or `\ptqty` if `siunitx` loaded		same as `\integratedquantity`
`\patchedquantity` or `\ptqty` if `siunitx` not loaded		same as `\patchedphysicsquantity`
`\qty` if without `nooverride` option		same as `\patchedquantity`
`\qty` if with `nooverride` option		not defined in this package
`\derivative`	$\dv{x} \rightarrow \dfrac{\mathrm{d}}{\mathrm{d}x}$	one argument
	$\dv{f}{x} \rightarrow \dfrac{\mathrm{d}f}{\mathrm{d}x}$	two arguments
	$\dv[n]{f}{x} \rightarrow \dfrac{\mathrm{d}^n f}{\mathrm{d}x^n}$	optional power
	$\dv{x}(\grande) \rightarrow \dfrac{\mathrm{d}}{\mathrm{d}x}\left(\blacksquare\right)\left(\blacksquare\right)$	long-form; automatic braces, spacing
	$\dv*{f}{x} \rightarrow \mathrm{d}f/\mathrm{d}x$	inline form using `\flatfrac`
	$\dv{f}{x}(\grande) \rightarrow \dfrac{\mathrm{d}f}{\mathrm{d}x}\left(\blacksquare\right)$	note: in original `physics` package, $\dv{f}{x}(\grande) \rightarrow \dfrac{\mathrm{d}f}{\mathrm{d}x}$
`\partialderivative`	$\pderivative{x} \rightarrow \dfrac{\partial}{\partial x}$	alternate name
	$\pdv{x} \rightarrow \dfrac{\partial}{\partial x}$	shorthand name
	$\pdv{f}{x} \rightarrow \dfrac{\partial f}{\partial x}$	two arguments
	$\pdv[n]{f}{x} \rightarrow \dfrac{\partial^n f}{\partial x^n}$	optional power
	$\pdv{x}(\grande) \rightarrow \dfrac{\partial}{\partial x}\left(\blacksquare\right)$	long-form
	$\pdv{f}{x}{y} \rightarrow \dfrac{\partial^2 f}{\partial x \partial y}$	mixed partial
	$\pdv*{f}{x} \rightarrow \partial f/\partial x$	inline form using `\flatfrac`
	$\pdv{f}{x}(\grande) \rightarrow \dfrac{\partial f}{\partial x}\left(\blacksquare\right)$	note: in original `physics` package, $\pdv{f}{x}(\grande) \rightarrow \dfrac{\partial f}{\partial x}$