Package ‘constants’

January 8, 2018

Type Package
Title Reference on Constants, Units and Uncertainty
Version 0.0.2
Description CODATA internationally recommended values of the fundamental physical constants, provided as symbols for direct use within the R language. Optionally, the values with errors and/or the values with units are also provided if the 'errors' and/or the 'units' packages are installed. The Committee on Data for Science and Technology (CODATA) is an interdisciplinary committee of the International Council for Science which periodically provides the internationally accepted set of values of the fundamental physical constants. This package contains the "2014 CODATA" version, published on 25 June 2015: Mohr, P. J., Newell, D. B. and Taylor, B. N. (2016) <DOI:10.1103/RevModPhys.88.035009>, <DOI:10.1063/1.4954402>.
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URL https://github.com/r-quantities/constants
BugReports https://github.com/r-quantities/constants/issues
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Suggests errors, units, testthat
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Description

The Committee on Data for Science and Technology (CODATA) is an interdisciplinary committee of the International Council for Science. The Task Group on Fundamental Constants periodically provides the internationally accepted set of values of the fundamental physical constants. This dataset contains the "2014 CODATA" version, published on 25 June 2015.

Usage

codata

Format

codata is a data frame with ... cases (rows) and 6 variables (columns) named quantity, symbol, value, unit, rel_uncertainty, and type.

Source


See Also

syms, lookup.
### constants

**constants**: Reference on Constants, Units and Uncertainty

**Description**

This package provides the 2014 version of the CODATA internationally recommended values of the fundamental physical constants for their use within the R language.

**Author(s)**

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**References**


**See Also**

codata, syms, lookup.

### lookup

**Lookup for Fundamental Physical Constants**

**Description**

A simple wrapper around grep for exploring the CODATA dataset.

**Usage**

`lookup(pattern, cols = c("quantity", "symbol", "type"), ...)`

**Arguments**

- `pattern` character string containing a regular expression to be matched (see grep).
- `cols` columns to perform pattern matching (see codata).
- `...` additional arguments for grep.

**See Also**

codata, syms.

**Examples**

`lookup("planck", ignore.case=TRUE)`
**Description**

These lists contain the named values for all the fundamental physical constants.

**Usage**

- `syms`
- `syms_with_errors`
- `syms_with_units`

**Format**

An object of class list or NULL (if not available).

**Details**

- `syms` contains plain numeric values.
- `syms_with_errors` contains objects of type `errors`, which encloses values with absolute errors and enables automatic error propagation (only available if the `errors` package is installed; see the documentation of that package for further information).
- `syms_with_units` contains objects of type `units`, which encloses values with units and enables automatic conversion, derivation and simplification (only available if the `units` package is installed; see the documentation of that package for further information).

**See Also**

- `codata`, `lookup`.

**Examples**

```r
# the speed of light
with(syms, c0)

# the Planck constant
attach(syms)
\[ hbar \]

detach(syms); attach(syms_with_errors)
\[ hbar \]

detach(syms_with_errors); attach(syms_with_units)
\[ hbar \]
```
Index

*Topic datasets
   codata, 2
   syms, 4

codata, 2, 3, 4
constants, 3
costants-package (constants), 3

grep, 3

lookup, 2, 3, 3, 4

syms, 2, 3, 4
syms_with_errors (syms), 4
syms_with_units (syms), 4