

The `hepnames` packages for \LaTeX

Andy Buckley, andy@insectnation.org

December 1, 2014

The `hepnames`, `heppennames` and `hepnicenames` packages provide a large, though not entirely comprehensive, library of established high-energy particle names. These are flexibly typeset using the `hepparticles` package, which gracefully adapts the particle typesetting depending on context.

`heppennames` re-implements and augments the particle entity notation scheme (PEN) using `hepparticles` macros; `hepnicenames` uses an alternative, more intuitive macro naming scheme to access the simple subset of PEN symbols; and `hepnames` is a convenience interface to both notations simultaneously.

Several missing particles have been implemented to augment the naming scheme. As well as distinct particle states that were missing in the original implementation, alternative representations and “simple forms” of existing PEN states have been added, occasionally with minimal renaming.

Particle names not in this scheme can be easily implemented using `hepparticles`. Contributions to the package, including requests, are of course encouraged.

1 Introduction

`hepnicenames` provides a less formally prescribed but more “natural language” set of macro names to access the particle names. Listings of macro-to-particle mappings can be found in the accompanying `heppennames` and `hepnicenames` PDF and PS files and in this document. All of the macros can be used both in and out of math mode. Unlisted particles can be easily implemented using `hepparticles` directly: please contact the author if you find a missing state, so it can be added to the library.

2 Package options

Both `heppennames` and `hepnicenames` support the `hepparticles` options, simply passing those options to `hepparticles`. Loading more than one of the packages with contradictory options has undefined behaviour, at least as far as the author is concerned! For your convenience, the `hepparticles` options documentation is repeated below:

By request, the package now typesets particles in italic as well as upright convention. The choice of convention can be made when the package is loaded with the `italic` and `notitalic` options, e.g. `\usepackage[italic]{hepnames}`. The default mode is upright (i.e. `notitalic`).

In addition, the `forceit` option will force *everything* in particle names to be italic, even if they aren't normally italic in math mode (such as Arabic numerals). Note that the italic font that will appear here is that used by `\mathit` and so will appear more script-like than normal math mode. I can't say that I recommend using this option, but it's there for flexibility's sake.

Finally, a pair of options, `maybess` and `noss`, are available: using `maybess` will allow particle names to be typeset in sans-serif if the surrounding context is sans-serif and `noss` has the converse effect. Note that since there is no italic sans-serif math font in LaTeX, generic particle names will not be typeset in italic sans font. Maybe this behaviour will change in future if there's lots of enthusiasm for a fix. However, it looks pretty good at the moment and I suspect most people will want sans-serif particle names in sans documents, so `maybess` is set by default.

3 Installation

Requirements: You will need to be using a L^AT_EX 2 _{ϵ} system, and have installed copies of the `hepparticles` package and the `maybemath` package on which it depends.

To install, simply copy the `hep*names.sty` files into a location in your LATEXINPUTS path. Tada!

Now we move on to the lists of macro names in the `hepnicenames` and `heppennames` schemes. I'm taken the liberty of placing the `hepnicenames` macros first, since for most purposes they're more intuitive, memorable and (dare I say it?) modern than the PEN codes.

4 `hepnicenames` macros

The scheme for the naming of these macros is less rigorous than PEN, but is still largely prescribed. The main features of the “nicename” macro naming scheme are:

- All particle macros start with `\P`, all antiparticle macros with `\AP`. In some cases, such as the positron, both `\Ppositron` and `\APElectron` are provided for the e^+ symbol, so as not to surprise the user.
- The core of the name is the particle type name in natural language and appropriately capitalised, e.g. `B`, `Lambda` etc.
- The optional end part of the command usually specifies the super- or sub-script state qualifier, e.g. `\PBplus` for the B^+ symbol, `\PZzero` for a Z with an explicit superscript zero. The “zero”, “plus”, “minus” and “pm”/“mp” strings (for \pm or \mp respectively) are implemented for every state for which they are possible.

To combine particle symbol macros in reaction expressions, you should use the `hepparticles` `\HepProcess` macro, which groups particles together with nice spacings, including a re-defined `\to` macro. Complex PEN-specified particles (essentially, the set of excited states with resonance qualifiers) have not been implemented in the “nicenames” scheme. A prime motivation for this is that L^AT_EX does not support numbers in macro names: spelling the resonance mass numbers out as words would be lengthy and ridiculous, so the PEN scheme is pretty much as easy to remember as any other in my opinion. Okay, that’s not quite true: “nicenames” macros with the “i, ii, iii”/“a, b, c” suffixes would probably be easier, but unless there’s demand for that feature, I can’t be bothered implementing it!

- | | |
|---------------------------------|---------------------------------------|
| • <code>\PB</code> ⇒ B | • <code>\PBd</code> ⇒ B_d^0 |
| • <code>\PBpm</code> ⇒ B^\pm | • <code>\PBu</code> ⇒ B^+ |
| • <code>\PBmp</code> ⇒ B^\mp | • <code>\PBc</code> ⇒ B_c^+ |
| • <code>\PBplus</code> ⇒ B^+ | • <code>\PBs</code> ⇒ B_s^0 |
| • <code>\PBminus</code> ⇒ B^- | • <code>\APB</code> ⇒ \bar{B} |
| • <code>\PBzero</code> ⇒ B^0 | • <code>\APBzero</code> ⇒ \bar{B}^0 |
| • <code>\PBstar</code> ⇒ B^* | • <code>\APBd</code> ⇒ \bar{B}_d^0 |

- $\text{\APBu} \Rightarrow B^-$
- $\text{\APBc} \Rightarrow B_c^-$
- $\text{\APBs} \Rightarrow \bar{B}_s^0$
- $\text{\PK} \Rightarrow K$
- $\text{\PKpm} \Rightarrow K^\pm$
- $\text{\PKmp} \Rightarrow K^\mp$
- $\text{\PKplus} \Rightarrow K^+$
- $\text{\PKminus} \Rightarrow K^-$
- $\text{\PKzero} \Rightarrow K^0$
- $\text{\PKshort} \Rightarrow K_S^0$
- $\text{\PKs} \Rightarrow K_S^0$
- $\text{\PKlong} \Rightarrow K_L^0$
- $\text{\PKl} \Rightarrow K_L^0$
- $\text{\PKstar} \Rightarrow K^*$
- $\text{\APK} \Rightarrow \bar{K}^0$
- $\text{\APKzero} \Rightarrow \bar{K}^0$
- $\text{\Pphoton} \Rightarrow \gamma$
- $\text{\Pgamma} \Rightarrow \gamma$
- $\text{\Pphotonx} \Rightarrow \gamma^*$
- $\text{\Pgammastar} \Rightarrow \gamma^*$
- $\text{\Pgluon} \Rightarrow g$
- $\text{\PW} \Rightarrow W$
- $\text{\PWpm} \Rightarrow W^\pm$
- $\text{\PWmp} \Rightarrow W^\mp$
- $\text{\PWplus} \Rightarrow W^+$
- $\text{\PWminus} \Rightarrow W^-$
- $\text{\PWprime} \Rightarrow W'$
- $\text{\PZ} \Rightarrow Z$
- Z with a zero
 $\text{\PZzero} \Rightarrow Z^0$
- Z -prime
 $\text{\PZprime} \Rightarrow Z'$
- axion
 $\text{\Paxion} \Rightarrow A^0$
- $\text{\Pfermion} \Rightarrow f$
- $\text{\Pfermionpm} \Rightarrow f^\pm$
- $\text{\Pfermionmp} \Rightarrow f^\mp$
- $\text{\Pfermionplus} \Rightarrow f^+$
- $\text{\Pfermionminus} \Rightarrow f^-$
- $\text{\APfermion} \Rightarrow \bar{f}$
- lepton
 $\text{\Plepton} \Rightarrow \ell$
- charged lepton
 $\text{\Pleptonpm} \Rightarrow \ell^\pm$
- charged lepton
 $\text{\Pleptonmp} \Rightarrow \ell^\mp$
- positive lepton
 $\text{\Pleptonplus} \Rightarrow \ell^+$

- negative lepton
 $\text{\textbackslash Pleptonminus} \Rightarrow \ell^-$
- anti-lepton
 $\text{\textbackslash APlepton} \Rightarrow \bar{\ell}$
- neutrino
 $\text{\textbackslash Pnu} \Rightarrow \nu$
- antineutrino
 $\text{\textbackslash APnu} \Rightarrow \bar{\nu}$
- neutrino
 $\text{\textbackslash Pneutrino} \Rightarrow \nu$
- antineutrino
 $\text{\textbackslash APneutrino} \Rightarrow \bar{\nu}$
- lepton-flavour neutrino
 $\text{\textbackslash Pnulepton} \Rightarrow \nu_\ell$
- lepton-flavour antineutrino
 $\text{\textbackslash APnulepton} \Rightarrow \bar{\nu}_\ell$
- $\text{\textbackslash Pe} \Rightarrow e$
- $\text{\textbackslash Pepm} \Rightarrow e^\pm$
- $\text{\textbackslash Pemp} \Rightarrow e^\mp$
- $\text{\textbackslash Pelectron} \Rightarrow e^-$
- $\text{\textbackslash APelectron} \Rightarrow e^+$
- $\text{\textbackslash Ppositron} \Rightarrow e^+$
- $\text{\textbackslash APpositron} \Rightarrow e^+$
- $\text{\textbackslash Pmu} \Rightarrow \mu$
- $\text{\textbackslash Pmump} \Rightarrow \mu^\pm$
- $\text{\textbackslash Pmuon} \Rightarrow \mu^-$
- $\text{\textbackslash APmuon} \Rightarrow \mu^+$
- $\text{\textbackslash Ptau} \Rightarrow \tau$
- $\text{\textbackslash Ptaupm} \Rightarrow \tau^\pm$
- $\text{\textbackslash Ptaump} \Rightarrow \tau^\mp$
- $\text{\textbackslash Ptauon} \Rightarrow \tau^-$
- $\text{\textbackslash APtauon} \Rightarrow \tau^+$
- $\text{\textbackslash Pnue} \Rightarrow \nu_e$
- $\text{\textbackslash Pnum} \Rightarrow \nu_\mu$
- $\text{\textbackslash Pnut} \Rightarrow \nu_\tau$
- $\text{\textbackslash APnue} \Rightarrow \bar{\nu}_e$
- $\text{\textbackslash APnum} \Rightarrow \bar{\nu}_\mu$
- $\text{\textbackslash APnut} \Rightarrow \bar{\nu}_\tau$
- $\text{\textbackslash Pquark} \Rightarrow q$
- $\text{\textbackslash APquark} \Rightarrow \bar{q}$
- $\text{\textbackslash Pdown} \Rightarrow d$
- $\text{\textbackslash Pup} \Rightarrow u$
- $\text{\textbackslash Pstrange} \Rightarrow s$
- $\text{\textbackslash Pcharm} \Rightarrow c$
- $\text{\textbackslash Pbottom} \Rightarrow b$
- $\text{\textbackslash Pbeauty} \Rightarrow b$
- $\text{\textbackslash Ptop} \Rightarrow t$
- $\text{\textbackslash Ptruth} \Rightarrow t$

- $\text{\APdown} \Rightarrow \bar{d}$
- $\text{\APqd} \Rightarrow \bar{d}$
- $\text{\APup} \Rightarrow \bar{u}$
- $\text{\APqu} \Rightarrow \bar{u}$
- $\text{\APstrange} \Rightarrow \bar{s}$
- $\text{\APqs} \Rightarrow \bar{s}$
- $\text{\APcharm} \Rightarrow \bar{c}$
- $\text{\APqc} \Rightarrow \bar{c}$
- $\text{\APbottom} \Rightarrow \bar{b}$
- $\text{\APbeauty} \Rightarrow \bar{b}$
- $\text{\APqb} \Rightarrow \bar{b}$
- $\text{\APtop} \Rightarrow \bar{t}$
- $\text{\APtruth} \Rightarrow \bar{t}$
- $\text{\APqt} \Rightarrow \bar{t}$
- $\text{\Pproton} \Rightarrow p$
- $\text{\Pneutron} \Rightarrow n$
- $\text{\APproton} \Rightarrow \bar{p}$
- $\text{\APneutron} \Rightarrow \bar{n}$
- $\text{\Pchic} \Rightarrow \chi_c$
- $\text{\PDelta} \Rightarrow \Delta$
- $\text{\PLambda} \Rightarrow \Lambda$
- $\text{\PLambda} \Rightarrow \bar{\Lambda}$
- $\text{\PLambda} \Rightarrow \Lambda_c^+$
- $\text{\PLambda} \Rightarrow \Lambda_b$
- $\text{\POmega} \Rightarrow \Omega$
- $\text{\POmega} \Rightarrow \Omega^\pm$
- $\text{\Pomega} \Rightarrow \Omega^\mp$
- $\text{\Pomegaplus} \Rightarrow \Omega^+$
- $\text{\Pomegaminus} \Rightarrow \Omega^-$
- $\text{\POmega} \Rightarrow \bar{\Omega}$
- $\text{\POmegaplus} \Rightarrow \bar{\Omega}^+$
- $\text{\POmegaminus} \Rightarrow \bar{\Omega}^-$
- $\text{\PSigma} \Rightarrow \Sigma$
- $\text{\PSigmapm} \Rightarrow \Sigma^\pm$
- $\text{\PSigmamp} \Rightarrow \Sigma^\mp$
- $\text{\PSigmapminus} \Rightarrow \Sigma^-$
- $\text{\PSigmaplus} \Rightarrow \Sigma^+$
- $\text{\PSigmazero} \Rightarrow \Sigma^0$
- $\text{\PSigmac} \Rightarrow \Sigma_c$
- $\text{\PSigmapminus} \Rightarrow \bar{\Sigma}^-$
- $\text{\PSigmaplus} \Rightarrow \bar{\Sigma}^+$
- $\text{\PSigmazero} \Rightarrow \bar{\Sigma}^0$
- $\text{\PSigmac} \Rightarrow \bar{\Sigma}_c$
- $\text{\PUpsilon} \Rightarrow \Upsilon$
- $\text{\PUpsilonOneS} \Rightarrow \Upsilon(1S)$
- $\text{\PUpsilonTwoS} \Rightarrow \Upsilon(2S)$
- $\text{\PUpsilonThreeS} \Rightarrow \Upsilon(3S)$

- $\text{\textbackslash PUpsilonFourS} \Rightarrow \Upsilon(4S)$
- $\text{\textbackslash PXi} \Rightarrow \Xi$
- $\text{\textbackslash PXiplus} \Rightarrow \Xi^+$
- $\text{\textbackslash PXiminus} \Rightarrow \Xi^-$
- $\text{\textbackslash PXizero} \Rightarrow \Xi^0$
- $\text{\textbackslash APXiplus} \Rightarrow \Xi_c^+$
- $\text{\textbackslash APXiminus} \Rightarrow \Xi_c^-$
- $\text{\textbackslash APXizero} \Rightarrow \Xi_c^0$
- $\text{\textbackslash PXicplus} \Rightarrow \Xi_c^+$
- $\text{\textbackslash PXiczero} \Rightarrow \Xi_c^0$
- $\text{\textbackslash Pphi} \Rightarrow \phi$
- $\text{\textbackslash Peta} \Rightarrow \eta$
- $\text{\textbackslash Petaprime} \Rightarrow \eta'$
- $\text{\textbackslash Petac} \Rightarrow \eta_c$
- $\text{\textbackslash Pomega} \Rightarrow \omega$
- $\text{\textbackslash Ppi} \Rightarrow \pi$
- $\text{\textbackslash Pipm} \Rightarrow \pi^\pm$
- $\text{\textbackslash Pimp} \Rightarrow \pi^\mp$
- $\text{\textbackslash Piplus} \Rightarrow \pi^+$
- $\text{\textbackslash Piminus} \Rightarrow \pi^-$
- $\text{\textbackslash Pizero} \Rightarrow \pi^0$
- $\text{\textbackslash Prho} \Rightarrow \rho$
- $\text{\textbackslash Rhoplus} \Rightarrow \rho^+$
- $\text{\textbackslash Rhominus} \Rightarrow \rho^-$
- $\text{\textbackslash Rhopm} \Rightarrow \rho^\pm$
- $\text{\textbackslash Rhomp} \Rightarrow \rho^\mp$
- $\text{\textbackslash Rhozero} \Rightarrow \rho^0$
- $\text{\textbackslash PJpsi} \Rightarrow J/\psi$
- $\text{\textbackslash PJpsiOneS} \Rightarrow J/\psi(1S)$
- $\text{\textbackslash Ppsi} \Rightarrow \psi$
- $\text{\textbackslash PsiTwoS} \Rightarrow \psi(2S)$
- $\text{\textbackslash PD} \Rightarrow D$
- $\text{\textbackslash PDpm} \Rightarrow D^\pm$
- $\text{\textbackslash PDmp} \Rightarrow D^\mp$
- $\text{\textbackslash PDzero} \Rightarrow D^0$
- $\text{\textbackslash PDminus} \Rightarrow D^-$
- $\text{\textbackslash PDplus} \Rightarrow D^+$
- $\text{\textbackslash PDstar} \Rightarrow D^*$
- $\text{\textbackslash APD} \Rightarrow \bar{D}$
- $\text{\textbackslash APDzero} \Rightarrow \bar{D}^0$
- $\text{\textbackslash PDs} \Rightarrow D_s$
- $\text{\textbackslash PDsminus} \Rightarrow D_s^-$
- $\text{\textbackslash PDsplus} \Rightarrow D_s^+$
- $\text{\textbackslash PDspm} \Rightarrow D_s^\pm$
- $\text{\textbackslash PDsmp} \Rightarrow D_s^\mp$
- $\text{\textbackslash PDsstar} \Rightarrow D_s^*$
- $\text{\textbackslash PHiggs} \Rightarrow H$

- $\text{\textbackslash PHiggsheavy} \Rightarrow H$
- $\text{\textbackslash PHiggslight} \Rightarrow h$
- $\text{\textbackslash PHiggsheavyzero} \Rightarrow H^0$
- $\text{\textbackslash PHiggslightzero} \Rightarrow h^0$
- $\text{\textbackslash PHiggsp} \Rightarrow A$
- $\text{\textbackslash PHiggsp} \Rightarrow A^0$
- $\text{\textbackslash PHiggspl} \Rightarrow H^+$
- $\text{\textbackslash PHiggsmin} \Rightarrow H^-$
- $\text{\textbackslash PHiggspm} \Rightarrow H^\pm$
- $\text{\textbackslash PHiggsmp} \Rightarrow H^\mp$
- $\text{\textbackslash PHiggszer} \Rightarrow H^0$
- $\text{\textbackslash PSHiggs} \Rightarrow \tilde{H}$
- $\text{\textbackslash PSHiggsino} \Rightarrow \tilde{H}$
- $\text{\textbackslash PSHiggsplus} \Rightarrow \tilde{H}^+$
- $\text{\textbackslash PSHiggzinoplus} \Rightarrow \tilde{H}^+$
- $\text{\textbackslash PSHiggsminus} \Rightarrow \tilde{H}^-$
- $\text{\textbackslash PSHiggzinominus} \Rightarrow \tilde{H}^-$
- $\text{\textbackslash PSHiggspm} \Rightarrow \tilde{H}^\pm$
- $\text{\textbackslash PSHiggzinopm} \Rightarrow \tilde{H}^\pm$
- $\text{\textbackslash PSHiggsmpl} \Rightarrow \tilde{H}^\mp$
- $\text{\textbackslash PSHiggzinomp} \Rightarrow \tilde{H}^\mp$
- $\text{\textbackslash PSHiggszer} \Rightarrow \tilde{H}^0$
- $\text{\textbackslash PSHiggzinozero} \Rightarrow \tilde{H}^0$
- bino
 $\text{\textbackslash PSB} \Rightarrow \tilde{B}$
- bino
 $\text{\textbackslash PSBino} \Rightarrow \tilde{B}$
- $\text{\textbackslash PSW} \Rightarrow \tilde{W}$
- $\text{\textbackslash PSWplus} \Rightarrow \tilde{W}^+$
- $\text{\textbackslash PSWminus} \Rightarrow \tilde{W}^-$
- $\text{\textbackslash PSWpm} \Rightarrow \tilde{W}^\pm$
- $\text{\textbackslash PSWmp} \Rightarrow \tilde{W}^\mp$
- $\text{\textbackslash PSWino} \Rightarrow \tilde{W}$
- $\text{\textbackslash PSWinopm} \Rightarrow \tilde{W}^\pm$
- $\text{\textbackslash PSWinomp} \Rightarrow \tilde{W}^\mp$
- $\text{\textbackslash PSZ} \Rightarrow \tilde{Z}$
- $\text{\textbackslash PSZzer} \Rightarrow \tilde{Z}^0$
- $\text{\textbackslash PSe} \Rightarrow \tilde{e}$
- photino
 $\text{\textbackslash Psphoton} \Rightarrow \tilde{\gamma}$
- photino
 $\text{\textbackslash Psphotino} \Rightarrow \tilde{\gamma}$
- photino
 $\text{\textbackslash Pphotino} \Rightarrow \tilde{\gamma}$
- smuon
 $\text{\textbackslash PSmu} \Rightarrow \tilde{\mu}$
- sneutrino
 $\text{\textbackslash PSnu} \Rightarrow \tilde{\nu}$

- stau
 $\text{\textbackslash PStau} \Rightarrow \tilde{\tau}$
- neutralino/chargino
 $\text{\textbackslash PSino} \Rightarrow \tilde{\chi}$
- neutralino/chargino
 $\text{\textbackslash PSgaugino} \Rightarrow \tilde{\chi}$
- chargino pm
 $\text{\textbackslash PScharginopm} \Rightarrow \tilde{\chi}^\pm$
- chargino mp
 $\text{\textbackslash PScharginomp} \Rightarrow \tilde{\chi}^\mp$
- neutralino
 $\text{\textbackslash PSneutralino} \Rightarrow \tilde{\chi}^0$
- lightest neutralino
 $\text{\textbackslash PSneutralinoOne} \Rightarrow \tilde{\chi}_1^0$
- next-to-lightest neutralino
 $\text{\textbackslash PSneutralinoTwo} \Rightarrow \tilde{\chi}_2^0$
- gluino
 $\text{\textbackslash PSgluino} \Rightarrow \tilde{g}$
- slepton
 $\text{\textbackslash PSlepton} \Rightarrow \tilde{\ell}$
- slepton
 $\text{\textbackslash PSslepton} \Rightarrow \tilde{\ell}$
- duplicate slepton macro
 $\text{\textbackslash Pslepton} \Rightarrow \tilde{\ell}$
- anti-slepton
 $\text{\textbackslash APSlepton} \Rightarrow \tilde{\bar{\ell}}$
- anti-slepton
 $\text{\textbackslash APslepton} \Rightarrow \tilde{\bar{\ell}}$
- $\text{\textbackslash PSq} \Rightarrow \tilde{q}$
- $\text{\textbackslash Psquark} \Rightarrow \tilde{q}$
- $\text{\textbackslash APSq} \Rightarrow \tilde{q}$
- $\text{\textbackslash APsquark} \Rightarrow \tilde{\bar{q}}$
- $\text{\textbackslash PSdown} \Rightarrow \tilde{d}$
- $\text{\textbackslash PSup} \Rightarrow \tilde{u}$
- $\text{\textbackslash PSstrange} \Rightarrow \tilde{s}$
- $\text{\textbackslash PScharm} \Rightarrow \tilde{c}$
- $\text{\textbackslash PSbottom} \Rightarrow \tilde{b}$
- $\text{\textbackslash PStop} \Rightarrow \tilde{t}$
- $\text{\textbackslash PASdown} \Rightarrow \tilde{\bar{d}}$
- $\text{\textbackslash PASup} \Rightarrow \tilde{\bar{u}}$
- $\text{\textbackslash PASstrange} \Rightarrow \tilde{\bar{s}}$
- $\text{\textbackslash PAScharm} \Rightarrow \tilde{\bar{c}}$
- $\text{\textbackslash PASbottom} \Rightarrow \tilde{\bar{b}}$
- $\text{\textbackslash PAStop} \Rightarrow \tilde{\bar{t}}$
- $\text{\textbackslash eplus} \Rightarrow e^+$
- $\text{\textbackslash eminus} \Rightarrow e^-$

5 heppennames macros

`heppennames` re-implements and augments the particles in the particle entity notation (PEN) scheme, specifically the `pennames.sty` L^AT_EX style. In several cases, simplified forms of the original PEN macros (e.g. Z⁰'s without the superscript zero, J/ ψ (1S) without the resonance specifier...) have been provided. Where this is the case, the PEN notation has usually been changed to make the simpler form of the symbol correspond to the simplest macro name.

- $\text{\color{red}\texttt{PB}} \Rightarrow B$
- $\text{\color{red}\texttt{PBpm}} \Rightarrow B^\pm$
- $\text{\color{red}\texttt{PBmp}} \Rightarrow B^\mp$
- $\text{\color{red}\texttt{PBp}} \Rightarrow B^+$
- $\text{\color{red}\texttt{PBm}} \Rightarrow B^-$
- $\text{\color{red}\texttt{PBz}} \Rightarrow B^0$
- $\text{\color{red}\texttt{PBst}} \Rightarrow B^*$
- $\text{\color{red}\texttt{PdB}} \Rightarrow B_d^0$
- $\text{\color{red}\texttt{PuB}} \Rightarrow B^+$
- $\text{\color{red}\texttt{PcB}} \Rightarrow B_c^+$
- $\text{\color{red}\texttt{PsB}} \Rightarrow B_s^0$
- $\text{\color{red}\texttt{PaB}} \Rightarrow \bar{B}$
- $\text{\color{red}\texttt{PaBz}} \Rightarrow \bar{B}^0$
- $\text{\color{red}\texttt{PadB}} \Rightarrow \bar{B}_d^0$
- $\text{\color{red}\texttt{PauB}} \Rightarrow B^-$
- $\text{\color{red}\texttt{PacB}} \Rightarrow B_c^-$
- $\text{\color{red}\texttt{PasB}} \Rightarrow \bar{B}_s^0$
- kaon
 $\text{\color{red}\texttt{PK}} \Rightarrow K$
- charged kaon
 $\text{\color{red}\texttt{PKpm}} \Rightarrow K^\pm$
- charged kaon
 $\text{\color{red}\texttt{PKmp}} \Rightarrow K^\mp$
- negative kaon
 $\text{\color{red}\texttt{PKm}} \Rightarrow K^-$
- positive kaon
 $\text{\color{red}\texttt{PKp}} \Rightarrow K^+$
- neutral kaon
 $\text{\color{red}\texttt{PKz}} \Rightarrow K^0$
- K-long
 $\text{\color{red}\texttt{PKzL}} \Rightarrow K_L^0$
- K-short
 $\text{\color{red}\texttt{PKzS}} \Rightarrow K_S^0$
- K star
 $\text{\color{red}\texttt{PKst}} \Rightarrow K^*$
- anti-kaon
 $\text{\color{red}\texttt{PaK}} \Rightarrow \bar{K}$

- neutral anti-kaon
 $\text{\textbackslash PaKz} \Rightarrow \bar{K}^0$
- $\text{\textbackslash PKeiii} \Rightarrow K_{e3}$
- $\text{\textbackslash PKgmiii} \Rightarrow K_{\mu 3}$
- $\text{\textbackslash PKzeiii} \Rightarrow K_{e3}^0$
- $\text{\textbackslash PKzgmiii} \Rightarrow K_{\mu 3}^0$
- $\text{\textbackslash PKia} \Rightarrow K_1(1400)$
- $\text{\textbackslash PKii} \Rightarrow K_2(1770)$
- $\text{\textbackslash PKi} \Rightarrow K_1(1270)$
- $\text{\textbackslash PKsti} \Rightarrow K^*(892)$
- $\text{\textbackslash PKsta} \Rightarrow K^*(1370)$
- $\text{\textbackslash PKstb} \Rightarrow K^*(1680)$
- $\text{\textbackslash PKstiii} \Rightarrow K_3^*(1780)$
- $\text{\textbackslash PKstii} \Rightarrow K_2^*(1430)$
- $\text{\textbackslash PKstiv} \Rightarrow K_4^*(2045)$
- $\text{\textbackslash PKstz} \Rightarrow K_0^*(1430)$
- $\text{\textbackslash PN} \Rightarrow N$
- $\text{\textbackslash PNa} \Rightarrow N(1440) P_{11}$
- $\text{\textbackslash PNb} \Rightarrow N(1520) D_{13}$
- $\text{\textbackslash PNc} \Rightarrow N(1535) S_{11}$
- $\text{\textbackslash PNd} \Rightarrow N(1650) S_{11}$
- $\text{\textbackslash PNe} \Rightarrow N(1675) D_{15}$
- $\text{\textbackslash PNf} \Rightarrow N(1680) F_{15}$
- $\text{\textbackslash PN} \Rightarrow N(1700) D_{13}$
- $\text{\textbackslash PN} \Rightarrow N(1710) P_{11}$
- $\text{\textbackslash PN} \Rightarrow N(1720) P_{13}$
- $\text{\textbackslash PN} \Rightarrow N(2190) G_{17}$
- $\text{\textbackslash PN} \Rightarrow N(2220) H_{19}$
- $\text{\textbackslash PN} \Rightarrow N(2250) G_{19}$
- $\text{\textbackslash PN} \Rightarrow N(2600) I_{1,11}$
- gluon
 $\text{\textbackslash Pg} \Rightarrow g$
- photon
 $\text{\textbackslash Pgg} \Rightarrow \gamma$
- photon*
 $\text{\textbackslash Pggx} \Rightarrow \gamma^*$
- W boson
 $\text{\textbackslash PW} \Rightarrow W$
- charged W boson
 $\text{\textbackslash PWpm} \Rightarrow W^\pm$
- charged W boson
 $\text{\textbackslash PWmp} \Rightarrow W^\mp$
- W-plus
 $\text{\textbackslash PWp} \Rightarrow W^+$
- W-minus
 $\text{\textbackslash PWm} \Rightarrow W^-$
- $\text{\textbackslash PWR} \Rightarrow W_R$
- W-prime boson
 $\text{\textbackslash PWpr} \Rightarrow W'$

- Z boson
 $\text{\textbackslash PZ} \Rightarrow Z$
- neutral Z boson
 $\text{\textbackslash PZz} \Rightarrow Z^0$
- Z-prime boson
 $\text{\textbackslash PZpr} \Rightarrow Z'$
- left-right Z boson
 $\text{\textbackslash PZLR} \Rightarrow Z_{\text{LR}}$
- $\text{\textbackslash PZgc} \Rightarrow Z_\chi$
- $\text{\textbackslash PZge} \Rightarrow Z_\eta$
- $\text{\textbackslash PZgy} \Rightarrow Z_\psi$
- $\text{\textbackslash PZi} \Rightarrow Z_1$
- axion
 $\text{\textbackslash PAz} \Rightarrow A^0$
- standard/heavy Higgs
 $\text{\textbackslash PH} \Rightarrow H$
- explicitly neutral standard/heavy Higgs
 $\text{\textbackslash PHz} \Rightarrow H^0$
- light Higgs
 $\text{\textbackslash Ph} \Rightarrow h$
- explicitly neutral light Higgs
 $\text{\textbackslash Phz} \Rightarrow h^0$
- pseudoscalar Higgs
 $\text{\textbackslash PA} \Rightarrow A$
- explicitly neutral pseudoscalar Higgs
 $\text{\textbackslash PAz} \Rightarrow A^0$
- charged Higgs
 $\text{\textbackslash PHpm} \Rightarrow H^\pm$
- charged Higgs
 $\text{\textbackslash PHmp} \Rightarrow H^\mp$
- positive-charged Higgs
 $\text{\textbackslash PHp} \Rightarrow H^+$
- negative-charged Higgs
 $\text{\textbackslash PHm} \Rightarrow H^-$
- fermion
 $\text{\textbackslash Pf} \Rightarrow f$
- charged fermion
 $\text{\textbackslash Pfpm} \Rightarrow f^\pm$
- charged fermion
 $\text{\textbackslash Pfmp} \Rightarrow f^\mp$
- positive fermion
 $\text{\textbackslash Pf} \Rightarrow f^+$
- negative fermion
 $\text{\textbackslash Ffm} \Rightarrow f^-$
- anti-fermion
 $\text{\textbackslash Paf} \Rightarrow \bar{f}$
- lepton
 $\text{\textbackslash Pl} \Rightarrow \ell$
- charged lepton
 $\text{\textbackslash Plpm} \Rightarrow \ell^\pm$
- charged lepton
 $\text{\textbackslash Plmp} \Rightarrow \ell^\mp$
- positive lepton
 $\text{\textbackslash Plp} \Rightarrow \ell^+$

- negative lepton
 $\text{\textbackslash Plm} \Rightarrow \ell^-$
- anti-lepton
 $\text{\textbackslash Pal} \Rightarrow \bar{\ell}$
- generic neutrino
 $\text{\textbackslash Pgn} \Rightarrow \nu$
- neutrino (for lepton ell)
 $\text{\textbackslash Pgnl} \Rightarrow \nu_\ell$
- generic anti-neutrino
 $\text{\textbackslash Pagn} \Rightarrow \bar{\nu}$
- anti-neutrino (for lepton ell)
 $\text{\textbackslash Pagnl} \Rightarrow \bar{\nu}_\ell$
- electronic
 $\text{\textbackslash Pe} \Rightarrow e$
- e plus/minus
 $\text{\textbackslash Pepm} \Rightarrow e^\pm$
- e minus/plus
 $\text{\textbackslash Eemp} \Rightarrow e^\mp$
- electron
 $\text{\textbackslash Pem} \Rightarrow e^-$
- positron
 $\text{\textbackslash Pep} \Rightarrow e^+$
- muonic
 $\text{\textbackslash Pgmm} \Rightarrow \mu$
- mu plus/minus
 $\text{\textbackslash Pgmpm} \Rightarrow \mu^\pm$
- mu minus/plus
 $\text{\textbackslash Pgmmmp} \Rightarrow \mu^\mp$
- muon
 $\text{\textbackslash Pgmm} \Rightarrow \mu^-$
- anti-muon
 $\text{\textbackslash Pgmp} \Rightarrow \mu^+$
- tauonic
 $\text{\textbackslash Pgt} \Rightarrow \tau$
- tau plus/minus
 $\text{\textbackslash Pgtpm} \Rightarrow \tau^\pm$
- tau minus/plus
 $\text{\textbackslash Pgtmp} \Rightarrow \tau^\mp$
- tau lepton
 $\text{\textbackslash Pgtm} \Rightarrow \tau^-$
- anti-tau
 $\text{\textbackslash Pgtp} \Rightarrow \tau^+$
- electron neutrino
 $\text{\textbackslash Pgne} \Rightarrow \nu_e$
- muon neutrino
 $\text{\textbackslash Pgngm} \Rightarrow \nu_\mu$
- tau neutrino
 $\text{\textbackslash Pgngt} \Rightarrow \nu_\tau$
- electron anti-neutrino
 $\text{\textbackslash Pagne} \Rightarrow \bar{\nu}_e$
- muon anti-neutrino
 $\text{\textbackslash Pagngm} \Rightarrow \bar{\nu}_\mu$
- tau anti-neutrino
 $\text{\textbackslash Pagngt} \Rightarrow \bar{\nu}_\tau$
- quark
 $\text{\textbackslash Pq} \Rightarrow q$

- anti-quark
 $\backslash\text{Paq} \Rightarrow \bar{q}$
- down quark
 $\backslash\text{Pqd} \Rightarrow d$
- up quark
 $\backslash\text{Pqu} \Rightarrow u$
- strange quark
 $\backslash\text{Pqs} \Rightarrow s$
- charm quark
 $\backslash\text{Pqc} \Rightarrow c$
- bottom quark
 $\backslash\text{Pqb} \Rightarrow b$
- top quark
 $\backslash\text{Pqt} \Rightarrow t$
- down anti-quark
 $\backslash\text{Paqd} \Rightarrow \bar{d}$
- up anti-quark
 $\backslash\text{Paqu} \Rightarrow \bar{u}$
- strange anti-quark
 $\backslash\text{Paqs} \Rightarrow \bar{s}$
- charm anti-quark
 $\backslash\text{Paqc} \Rightarrow \bar{c}$
- bottom anti-quark
 $\backslash\text{Paqb} \Rightarrow \bar{b}$
- top anti-quark
 $\backslash\text{Paqt} \Rightarrow \bar{t}$
- $\backslash\text{Pqb} \Rightarrow b$
- $\backslash\text{Pqc} \Rightarrow c$
- $\backslash\text{Pqd} \Rightarrow d$
- $\backslash\text{Pqs} \Rightarrow s$
- $\backslash\text{Pqt} \Rightarrow t$
- $\backslash\text{Pqu} \Rightarrow u$
- $\backslash\text{Pq} \Rightarrow q$
- anti-bottom quark
 $\backslash\text{Paqb} \Rightarrow \bar{b}$
- anti-charm quark
 $\backslash\text{Paqc} \Rightarrow \bar{c}$
- anti-down quark
 $\backslash\text{Paqd} \Rightarrow \bar{d}$
- anti-strange quark
 $\backslash\text{Paqs} \Rightarrow \bar{s}$
- anti-top quark
 $\backslash\text{Paqt} \Rightarrow \bar{t}$
- anti-up quark
 $\backslash\text{Paqu} \Rightarrow \bar{u}$
- anti-quark
 $\backslash\text{Paq} \Rightarrow \bar{q}$
- proton
 $\backslash\text{Pp} \Rightarrow p$
- neutron
 $\backslash\text{Pn} \Rightarrow n$
- anti-proton
 $\backslash\text{Pap} \Rightarrow \bar{p}$

- anti-neutron
 $\backslash \text{Pan} \Rightarrow \bar{n}$
- $\backslash \text{PcgC} \Rightarrow \chi_c$
- $\backslash \text{PcgCii} \Rightarrow \chi_{c2}(1P)$
- $\backslash \text{PcgCi} \Rightarrow \chi_{c1}(1P)$
- $\backslash \text{PcgCz} \Rightarrow \chi_{c0}(1P)$
- $\backslash \text{Pfia} \Rightarrow f_1(1390)$
- $\backslash \text{Pfib} \Rightarrow f_1(1510)$
- $\backslash \text{Pfia} \Rightarrow f_2(1720)$
- $\backslash \text{Pfiib} \Rightarrow f_2(2010)$
- $\backslash \text{Pfiic} \Rightarrow f_2(2300)$
- $\backslash \text{Pfiid} \Rightarrow f_2(2340)$
- $\backslash \text{Pfiipr} \Rightarrow f'_2(1525)$
- $\backslash \text{Pfii} \Rightarrow f_2(1270)$
- $\backslash \text{Pfiiv} \Rightarrow f_4(2050)$
- $\backslash \text{Pfi} \Rightarrow f_1(1285)$
- $\backslash \text{Pfza} \Rightarrow f_0(1400)$
- $\backslash \text{Pfzb} \Rightarrow f_0(1590)$
- $\backslash \text{Pfz} \Rightarrow f_0(975)$
- $\backslash \text{PgD} \Rightarrow \Delta$
- $\backslash \text{PgDa} \Rightarrow \Delta(1232) P_{33}$
- $\backslash \text{PgDb} \Rightarrow \Delta(1620) S_{31}$
- $\backslash \text{PgDc} \Rightarrow \Delta(1700) D_{33}$
- $\backslash \text{PgDd} \Rightarrow \Delta(1900) S_{31}$
- $\backslash \text{PgDe} \Rightarrow \Delta(1905) F_{35}$
- $\backslash \text{PgDf} \Rightarrow \Delta(1910) P_{31}$
- $\backslash \text{PgDh} \Rightarrow \Delta(1920) P_{33}$
- $\backslash \text{PgDi} \Rightarrow \Delta(1930) D_{35}$
- $\backslash \text{PgDj} \Rightarrow \Delta(1950) F_{37}$
- $\backslash \text{PgDk} \Rightarrow \Delta(2420) H_{3,11}$
- $\backslash \text{PgL} \Rightarrow \Lambda$
- $\backslash \text{PagL} \Rightarrow \bar{\Lambda}$
- $\backslash \text{PcgLp} \Rightarrow \Lambda_c^+$
- $\backslash \text{PbgL} \Rightarrow \Lambda_b$
- $\backslash \text{PgLa} \Rightarrow \Lambda(1405) S_{01}$
- $\backslash \text{PgLb} \Rightarrow \Lambda(1520) D_{03}$
- $\backslash \text{PgLc} \Rightarrow \Lambda(1600) P_{01}$
- $\backslash \text{PgLd} \Rightarrow \Lambda(1670) S_{01}$
- $\backslash \text{PgLe} \Rightarrow \Lambda(1690) D_{03}$
- $\backslash \text{PgLf} \Rightarrow \Lambda(1800) S_{01}$
- $\backslash \text{PgLg} \Rightarrow \Lambda(1810) P_{01}$
- $\backslash \text{PgLh} \Rightarrow \Lambda(1820) F_{05}$
- $\backslash \text{PgLi} \Rightarrow \Lambda(1830) D_{05}$
- $\backslash \text{PgLj} \Rightarrow \Lambda(1890) P_{03}$
- $\backslash \text{PgLk} \Rightarrow \Lambda(2100) G_{07}$
- $\backslash \text{PgLl} \Rightarrow \Lambda(2110) F_{05}$
- $\backslash \text{PgLm} \Rightarrow \Lambda(2350) H_{09}$

- $\backslash Pg0 \Rightarrow \Omega$
- $\backslash Pg0pm \Rightarrow \Omega^\pm$
- $\backslash Pg0mp \Rightarrow \Omega^\mp$
- $\backslash Pg0p \Rightarrow \Omega^+$
- $\backslash Pg0m \Rightarrow \Omega^-$
- $\backslash Pg0ma \Rightarrow \Omega(2250)^-$
- new
 $\backslash Pag0 \Rightarrow \bar{\Omega}$
- $\backslash Pag0p \Rightarrow \bar{\Omega}^+$
- $\backslash Pag0m \Rightarrow \bar{\Omega}^-$
- $\backslash PgS \Rightarrow \Sigma$
- $\backslash PgSpm \Rightarrow \Sigma^\pm$
- $\backslash PgSmp \Rightarrow \Sigma^\mp$
- $\backslash PgSm \Rightarrow \Sigma^-$
- $\backslash PgSp \Rightarrow \Sigma^+$
- $\backslash PgSz \Rightarrow \Sigma^0$
- $\backslash PcgS \Rightarrow \Sigma_c$
- $\backslash PagSm \Rightarrow \bar{\Sigma}^-$
- $\backslash PagSp \Rightarrow \bar{\Sigma}^+$
- $\backslash PagSz \Rightarrow \bar{\Sigma}^0$
- $\backslash PacgS \Rightarrow \bar{\Sigma}_c$
- $\backslash PgSa \Rightarrow \Sigma(1385) P_{13}$
- $\backslash PgSb \Rightarrow \Sigma(1660) P_{11}$
- $\backslash PgSc \Rightarrow \Sigma(1670) D_{13}$
- $\backslash PgSd \Rightarrow \Sigma(1750) S_{11}$
- $\backslash PgSe \Rightarrow \Sigma(1775) D_{15}$
- $\backslash PgSf \Rightarrow \Sigma(1915) F_{15}$
- $\backslash PgSg \Rightarrow \Sigma(1940) D_{13}$
- $\backslash PgSh \Rightarrow \Sigma(2030) F_{17}$
- $\backslash PgSi \Rightarrow \Sigma(2050)$
- $\backslash PcgSi \Rightarrow \Sigma_c(2455)$
- $\backslash PgU \Rightarrow \Upsilon$
- $\backslash PgUi \Rightarrow \Upsilon(1S)$
- $\backslash PgUa \Rightarrow \Upsilon(2S)$
- $\backslash PgUb \Rightarrow \Upsilon(3S)$
- $\backslash PgUc \Rightarrow \Upsilon(4S)$
- $\backslash PgUd \Rightarrow \Upsilon(10860)$
- $\backslash PgUe \Rightarrow \Upsilon(11020)$
- $\backslash PgX \Rightarrow \Xi$
- $\backslash PgXp \Rightarrow \Xi^+$
- $\backslash PgXm \Rightarrow \Xi^-$
- $\backslash PgXz \Rightarrow \Xi^0$
- $\backslash PgXa \Rightarrow \Xi(1530) P_{13}$
- $\backslash PgXb \Rightarrow \Xi(1690)$
- $\backslash PgXc \Rightarrow \Xi(1820) D_{13}$
- $\backslash PgXd \Rightarrow \Xi(1950)$
- $\backslash PgXe \Rightarrow \Xi(2030)$

- $\text{\textbackslash PagXp} \Rightarrow \bar{\Xi}^+$
- $\text{\textbackslash PagXm} \Rightarrow \bar{\Xi}^-$
- $\text{\textbackslash PagXz} \Rightarrow \bar{\Xi}^0$
- $\text{\textbackslash PcgXp} \Rightarrow \Xi_c^+$
- $\text{\textbackslash PcgXz} \Rightarrow \Xi_c^0$
- $\text{\textbackslash Pgff} \Rightarrow \phi$
- $\text{\textbackslash Pgfi} \Rightarrow \phi(1020)$
- $\text{\textbackslash Pgfa} \Rightarrow \phi(1680)$
- $\text{\textbackslash Pgfi_ii} \Rightarrow \phi_3(1850)$
- $\text{\textbackslash Pgh} \Rightarrow \eta$
- $\text{\textbackslash Pghpr} \Rightarrow \eta'$
- $\text{\textbackslash Pcggh} \Rightarrow \eta_c$
- $\text{\textbackslash Pgah} \Rightarrow \eta(1295)$
- $\text{\textbackslash Pghb} \Rightarrow \eta(1440)$
- $\text{\textbackslash Pghpri} \Rightarrow \eta'(958)$
- $\text{\textbackslash Pcgghi} \Rightarrow \eta_c(1S)$
- $\text{\textbackslash Pgo} \Rightarrow \omega$
- $\text{\textbackslash Pgoi} \Rightarrow \omega(783)$
- $\text{\textbackslash Pgaoa} \Rightarrow \omega(1390)$
- $\text{\textbackslash Pgob} \Rightarrow \omega(1600)$
- $\text{\textbackslash Pgovi} \Rightarrow \omega(3)^{1670}$
- pion
 $\text{\textbackslash Pgp} \Rightarrow \pi$
- charged pion
 $\text{\textbackslash Pgppm} \Rightarrow \pi^\pm$
- charged pion
 $\text{\textbackslash Pgmp} \Rightarrow \pi^\mp$
- negative pion
 $\text{\textbackslash Pgpm} \Rightarrow \pi^-$
- positive pion
 $\text{\textbackslash Pgpp} \Rightarrow \pi^+$
- neutral pion
 $\text{\textbackslash Pgpz} \Rightarrow \pi^0$
- $\text{\textbackslash Pgpa} \Rightarrow \pi(1300)$
- $\text{\textbackslash Pgpii} \Rightarrow \pi_2(1670)$
- resonance removed
 $\text{\textbackslash Pgr} \Rightarrow \rho$
- $\text{\textbackslash Pgrp} \Rightarrow \rho^+$
- $\text{\textbackslash Pgrm} \Rightarrow \rho^-$
- $\text{\textbackslash Grpm} \Rightarrow \rho^\pm$
- $\text{\textbackslash Grmp} \Rightarrow \rho^\mp$
- $\text{\textbackslash Grz} \Rightarrow \rho^0$
- new
 $\text{\textbackslash Pgri} \Rightarrow \rho(770)$
- $\text{\textbackslash Pgra} \Rightarrow \rho(1450)$
- $\text{\textbackslash Grb} \Rightarrow \rho(1700)$
- $\text{\textbackslash Pgriii} \Rightarrow \rho_3(1690)$
- $\text{\textbackslash PJgy} \Rightarrow J/\psi$
- $\text{\textbackslash PJgyi} \Rightarrow J/\psi(1S)$

- $\text{\Pgy} \Rightarrow \psi$
- $\text{\Pgyii} \Rightarrow \psi(2S)$
- $\text{\Pgya} \Rightarrow \psi(3770)$
- $\text{\Pgyb} \Rightarrow \psi(4040)$
- $\text{\Pgyc} \Rightarrow \psi(4160)$
- $\text{\Pgyd} \Rightarrow \psi(4415)$
- $\text{\PD} \Rightarrow D$
- $\text{\PDpm} \Rightarrow D^\pm$
- $\text{\PDmp} \Rightarrow D^\mp$
- $\text{\PDz} \Rightarrow D^0$
- $\text{\PDm} \Rightarrow D^-$
- $\text{\PDp} \Rightarrow D^+$
- $\text{\PDst} \Rightarrow D^*$
- $\text{\PaD} \Rightarrow \bar{D}$
- $\text{\PaDz} \Rightarrow \bar{D}^0$
- new 2005-07-08
 $\text{\PsD} \Rightarrow D_s$
- $\text{\PsDm} \Rightarrow D_s^-$
- $\text{\PsDp} \Rightarrow D_s^+$
- $\text{\PsDpm} \Rightarrow D_s^\pm$
- $\text{\PsDmp} \Rightarrow D_s^\mp$
- $\text{\PsDst} \Rightarrow D_s^*$
- $\text{\PsDipm} \Rightarrow D_{s1}(2536)^\pm$
- $\text{\PsDimp} \Rightarrow D_{s1}(2536)^\mp$
- $\text{\PDis} \Rightarrow D_1(2420)^0$
- $\text{\PDstiiz} \Rightarrow D_2^*(2460)^0$
- $\text{\PDstpm} \Rightarrow D^*(2010)^\pm$
- $\text{\PDstmp} \Rightarrow D^*(2010)^\mp$
- $\text{\PDstz} \Rightarrow D^*(2010)^0$
- $\text{\PEz} \Rightarrow E^0$
- $\text{\PLpm} \Rightarrow L^\pm$
- $\text{\PLmp} \Rightarrow L^\mp$
- $\text{\PLz} \Rightarrow L^0$
- $\text{\Paii} \Rightarrow a_2(1320)$
- $\text{\Pai} \Rightarrow a_1(1260)$
- $\text{\Paz} \Rightarrow a_0(980)$
- $\text{\Pbgcia} \Rightarrow \chi_{b1}(2P)$
- $\text{\Pbgciia} \Rightarrow \chi_{b2}(2P)$
- $\text{\Pbgcii} \Rightarrow \chi_{b2}(1P)$
- $\text{\Pbgci} \Rightarrow \chi_{b1}(1P)$
- $\text{\Pbgcza} \Rightarrow \chi_{b0}(2P)$
- $\text{\Pbgcz} \Rightarrow \chi_{b0}(1P)$
- $\text{\Pbi} \Rightarrow b_1(1235)$
- $\text{\Phia} \Rightarrow h_1(1170)$
- Higgsino
 $\text{\PSH} \Rightarrow \tilde{H}$
- positive Higgsino
 $\text{\PSHp} \Rightarrow \tilde{H}^+$

- negative Higgsino
 $\text{\textbackslash PSHm} \Rightarrow \widetilde{H}^-$
- charged Higgsino
 $\text{\textbackslash PSHpm} \Rightarrow \widetilde{H}^\pm$
- charged Higgsino
 $\text{\textbackslash PSHmp} \Rightarrow \widetilde{H}^\mp$
- neutral Higgsino
 $\text{\textbackslash PSHz} \Rightarrow \widetilde{H}^0$
- wino
 $\text{\textbackslash PSW} \Rightarrow \widetilde{W}$
- positive wino
 $\text{\textbackslash PSWP} \Rightarrow \widetilde{W}^+$
- negative wino
 $\text{\textbackslash PSWm} \Rightarrow \widetilde{W}^-$
- wino pm
 $\text{\textbackslash PSWpm} \Rightarrow \widetilde{W}^\pm$
- wino mp
 $\text{\textbackslash PSWmp} \Rightarrow \widetilde{W}^\mp$
- zino
 $\text{\textbackslash PSZ} \Rightarrow \widetilde{Z}$
- zino
 $\text{\textbackslash PSZZ} \Rightarrow \widetilde{Z}^0$
- bino
 $\text{\textbackslash PSB} \Rightarrow \widetilde{B}$
- selectron
 $\text{\textbackslash PSe} \Rightarrow \widetilde{e}$
- photino
 $\text{\textbackslash PSgg} \Rightarrow \widetilde{\gamma}$
- smuon
 $\text{\textbackslash PSgm} \Rightarrow \widetilde{\mu}$
- sneutrino
 $\text{\textbackslash PSgn} \Rightarrow \widetilde{\nu}$
- stau
 $\text{\textbackslash PSgt} \Rightarrow \widetilde{\tau}$
- chargino/neutralino
 $\text{\textbackslash PSgx} \Rightarrow \widetilde{\chi}$
- chargino pm
 $\text{\textbackslash PSgxpmp} \Rightarrow \widetilde{\chi}^\pm$
- chargino mp
 $\text{\textbackslash PSgxmp} \Rightarrow \widetilde{\chi}^\mp$
- neutralino
 $\text{\textbackslash PSgxz} \Rightarrow \widetilde{\chi}^0$
- lightest neutralino
 $\text{\textbackslash PSgxzi} \Rightarrow \widetilde{\chi}_1^0$
- next-to-lightest neutralino
 $\text{\textbackslash PSgxzii} \Rightarrow \widetilde{\chi}_2^0$
- gluino
 $\text{\textbackslash PSg} \Rightarrow \widetilde{g}$
- slepton (generic)
 $\text{\textbackslash PSl} \Rightarrow \widetilde{\ell}$
- anti-slepton (generic)
 $\text{\textbackslash PaSl} \Rightarrow \widetilde{\bar{\ell}}$
- squark (generic)
 $\text{\textbackslash PSq} \Rightarrow \widetilde{q}$
- anti-squark (generic)
 $\text{\textbackslash PaSq} \Rightarrow \widetilde{\bar{q}}$

- down squark
 $\backslash\text{PSqd} \Rightarrow \tilde{d}$
- up squark
 $\backslash\text{PSqu} \Rightarrow \tilde{u}$
- strange squark
 $\backslash\text{PSqs} \Rightarrow \tilde{s}$
- charm squark
 $\backslash\text{PSqc} \Rightarrow \tilde{c}$
- bottom squark (sbottom)
 $\backslash\text{PSqb} \Rightarrow \tilde{b}$
- top squark (stop)
 $\backslash\text{PSqt} \Rightarrow \tilde{t}$
- anti-down squark
 $\backslash\text{PaSqd} \Rightarrow \bar{\tilde{d}}$
- anti-up squark
 $\backslash\text{PaSqu} \Rightarrow \bar{\tilde{u}}$
- anti-strange squark
 $\backslash\text{PaSqs} \Rightarrow \bar{\tilde{s}}$
- anti-charm squark
 $\backslash\text{PaSqc} \Rightarrow \bar{\tilde{c}}$
- anti-bottom squark
 $\backslash\text{PaSqb} \Rightarrow \bar{\tilde{b}}$
- anti-top squark (stop)
 $\backslash\text{PaSqt} \Rightarrow \bar{\tilde{t}}$

Any feedback is appreciated! Email it to `andy@insectnation.org`, please.

In particular, if you find that a particle name is missing, please let me know, preferably with a recommended pair of macro names (for the PEN and “nice” names) and a description of how it should be typeset. The best form is to give me an implementation in terms of the `hepparticles` macros, of course!