Draft version 1.0

ATLAS NOTE

August 15, 2014

Symbols defined in `atlasphysics.sty`

Ian C. Brock

Abstract

This note lists the symbols defined in `atlasphysics.sty`.

1 The `atlasphysics.sty` style file

The `atlasphysics.sty` style file implements a series of useful shortcuts to typeset a physics paper, such as units or particle symbols. It can included in the preamble of your paper with the usual syntax:

```
\usepackage{atlasphysics}
```

The style file contains among other things:

`\lapprox`	$\lesssim$	`\rapprox`	$\gtrsim$	`\rts`	$\sqrt{s}$
`\Ecm`	E_{cm}	`\stat`	(stat.)	`\syst`	(syst.)

`\Zboson`	Z	`\Wboson`	W	`\Wplus`	W^+
`\Wminus`	W^-	`\Wpm`	$W^\pm$	`\Wmp`	$W^\mp$
`\Afb`	A_{fb}	`\GW`	Γ_W	`\GZ`	Γ_Z
`\Wln`	$W \to \ell\nu$	`\Zll`	$Z \to \ell\ell$	`\Zee`	$Z \to ee$
`\Zmm`	$Z \to \mu\mu$	`\mZ`	m_Z		
`\mW`	m_W	`\mH`	m_H		
`\Mtau`	m_τ	`\swsq`	$\sin^2\theta_W$	`\swel`	$\sin^2\theta_{\mathrm{eff}}^{\mathrm{lept}}$
`\swsqb`	$\sin^2\overline{\theta}_W$	`\swsqon`	$\sin^2\theta_W \equiv 1 - m_W^2/m_Z^2$	`\gv`	g_{V}
`\ga`	g_{A}	`\gvbar`	$\bar{g}_{\mathrm{V}}$	`\gabar`	$\bar{g}_{\mathrm{A}}$
`\Zprime`	Z'	`\Hboson`	H	`\GH`	Γ_H

The command `\Zzero` is identical to `\Zboson`.

`\tbar`	$\bar{t}$	`\ttbar`	$t\bar{t}$	`\bbar`	$\bar{b}$
`\bbbar`	$b\bar{b}$	`\cbar`	$\bar{c}$	`\ccbar`	$c\bar{c}$
`\sbar`	$\bar{s}$	`\ssbar`	$s\bar{s}$	`\ubar`	$\bar{u}$
`\uubar`	$u\bar{u}$	`\dbar`	$\bar{d}$	`\ddbar`	$d\bar{d}$
`\fbar`	$\bar{f}$	`\ffbar`	$f\bar{f}$	`\qbar`	$\bar{q}$
`\qqbar`	$q\bar{q}$	`\nbar`	$\bar{\nu}$	`\nnbar`	$\nu\bar{\nu}$
`\ee`	e^+e^-	`\mumu`	$\mu^+\mu^-$	`\tautau`	$\tau^+\tau^-$
`\epm`	$e^\pm$	`\leplep`	$\ell^+\ell^-$	`\lnu`	$\ell\nu$

`\BoBo`	B^0–$\bar{B}^0$	`\BodBod`	B_d^0–$\bar{B}_d^0$	`\BosBos`	B_s^0–$\bar{B}_s^0$
`\Bd`	B_d^0	`\Bs`	B_s^0	`\Bu`	B_u
`\Bc`	B_c	`\Lb`	Λ_b	`\jpsi`	J/ψ
`\Jpsi`	J/ψ	`\Jee`	$J/\psi \to e^+e^-$	`\Jmm`	$J/\psi \to \mu^+\mu^-$
`\psip`	ψ'	`\kzero`	K^0	`\kzerobar`	$\overline{K}^0$
`\kaon`	K	`\kplus`	K^+	`\kminus`	K^-
`\klong`	K_{L}^0	`\kshort`	K_{S}^0	`\Ups`	Υ

`\alphas`	α_{S}	`\Lms`	$\Lambda_{\overline{\mathrm{MS}}}$	`\Lmsfive`	$\Lambda_{\overline{\mathrm{MS}}}^{(5)}$	`\KT`	$k_\perp$

`\Vud`	$\lvert V_{ud}\rvert$	`\Vus`	$\lvert V_{us}\rvert$	`\Vub`	$\lvert V_{ub}\rvert$
`\Vcd`	$\lvert V_{cd}\rvert$	`\Vcs`	$\lvert V_{cs}\rvert$	`\Vcb`	$\lvert V_{cb}\rvert$
`\Vtd`	$\lvert V_{td}\rvert$	`\Vts`	$\lvert V_{ts}\rvert$	`\Vtb`	$\lvert V_{tb}\rvert$

`\Azero`	A^0	`\hzero`	h^0	`\Hzero`	H^0
`\Hplus`	H^+	`\Hminus`	H^-	`\Hpm`	$H^\pm$

A generic macro `\susy#1` is defined, so that for example `\susy{q}` produces $\tilde{q}$ and similar.

\chinop	$\tilde{\chi}^+$	\chinotwom	$\tilde{\chi}_2^-$	\chinopm	$\tilde{\chi}^\pm$
\nino	$\tilde{\chi}^0$	\ninothree	$\tilde{\chi}_3^0$	\gravino	$\tilde{G}$
\squark	$\tilde{q}$	\gluino	$\tilde{g}$	\slepton	$\tilde{\ell}$
\stop	$\tilde{t}$	\stopone	$\tilde{t}_1$	\stopL	$\tilde{t}_\mathrm{L}$
\sbottom	$\tilde{b}$	\sbottomtwo	$\tilde{b}_2$	\sbottomR	$\tilde{b}_\mathrm{R}$
\sleptonL	$\tilde{\ell}_\mathrm{L}$	\sel	$\tilde{e}$	\smuR	$\tilde{\mu}_\mathrm{R}$
\stauone	$\tilde{\tau}_1$	\snu	$\tilde{\nu}$	\squarkR	$\tilde{q}_\mathrm{R}$

For $\tilde{q}$, $\tilde{t}$, $\tilde{b}$, $\tilde{\ell}$, $\tilde{e}$, $\tilde{\mu}$and $\tilde{\tau}$, L and R states are defined; for stop, sbottom and stau also the light (1) and heavy (2) states. There are four neutralinos and two charginos defined, the index number unfortunately needs to be written out completely. For the charginos the last letter(s) indicate(s) the charge: p for +, m for -, and pm for ±.

\pt	p_T	\pT	p_T	\et	E_T
\eT	E_T	\ET	E_T	\HT	H_T
\ptsq	p_T^2	\met{}	$E_\mathrm{T}^\mathrm{miss}$		

Use \met{} rather than just \met to get the spacing right. In principle this works for any macro, although in most cases it will not be needed as xspace.sty will take care of the spacing. Somehow xspace.sty doesn't do a good job for $E_\mathrm{T}^\mathrm{miss}$.

\ifb	fb^{-1}	\ipb	pb^{-1}	\inb	nb^{-1}
\TeV	TeV	\GeV	GeV	\MeV	MeV
\keV	keV	\eV	eV		

And \tev, \gev, \mev, \kev, and \ev have the same results.

A generic macro \mass#1 is defined, so that for example \mass{\mu} produces $m_{\mu\mu}$ and similar. \twomass{\mu e} will produce $m_{\mu e}$.