The svrsymbols LaTeX Package: New ideograms for Physics

Pablo García Risueño
Humboldt Universität zu Berlin, Germany

Apostolos Syropoulos
Xanthi, Greece
asyropoulos@yahoo.com

Natàlia Vergés
Besalú (Girona), Spain

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Abstract

The svrsymbols package is a LaTeX interface to the SVRsymbols font. The glyphs of this font are ideograms that have been designed for use in Physics texts. Some symbols are standard and some are entirely new.

1 Introduction - Usage

Ideograms are present in most communication codes that are in daily use. Examples of ideograms are the digits 0,1,…,9, mathematical symbols (like $+$, $-$, $\in$, $\surd$, etc.), emoticons, traffic signs or commercial logos. In English there are symbols that represent words (e.g., think of the symbols @, $, and &). In addition, there are symbols that are ubiquitous in certain languages (e.g., Chinese, Korean, and Japanese). Nowadays, the current "corpus" of modern languages that are written with an alphabet (e.g., Spanish and Greek) include certain ideograms and pictograms to enhance and simplify communication (e.g., think of smileys).

Table 1: Glyph access commands provided by package svrsymbols.

Glyph access commands			
Command	Symbol	Command	Symbol
`\Bmesonminus`	B^-	`\Bmesonnull`	B^0
`\Bmesonplus`	B^+	`\Dmesonminus`	D^-
`\Dmesonnull`	D^0	`\Dmesonplus`	D^+
`\Gluon`	g	`\Higgsboson`	H
`\Jpsimeson`	J/ψ	`\Kaonminus`	K^-
`\Kaonnull`	K^0	`\Kaonplus`	K^+
`\Tmesonminus`	T^-	`\Tmesonnull`	T^0
`\Tmesonplus`	T^+	`\Upsilonmeson`	Υ
`\Wboson`	W	`\Wbosonminus`	W^-
`\Wbosonplus`	W^+	`\Zboson`	Z
`\adsorbate`	Δ	`\adsorbent`	
`\antimuon`	μ^+	`\antineutrino`	$\bar{\nu}$

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Command	Symbol	Command	Symbol
`\antineutron`	$\bar{n}$	`\antiproton`	p^-
`\antiproton`	p^-	`\antiquark`	$\bar{q}$
`\antiquarkb`	$\bar{b}$	`\antiquarkc`	$\bar{c}$
`\antiquarkd`	$\bar{d}$	`\antiquarks`	$\bar{s}$
`\antiquarkt`	$\bar{t}$	`\antiquarku`	$\bar{u}$
`\anyon`	Ꭿ	`\assumption`	⛤
`\atom`	⚛	`\bond`	⟷
`\boseDistrib`	ℬ	`\boson`	ℬ
`\conductivity`	⊛	`\covbond`	₵
`\dipole`	d^p	`\doublecovbond`	₡
`\electron`	e^-	`\errorsym`	Ǝ
`\exciton`	-∍h^+	`\experimentalsym`	Ж
`\externalsym`	◘	`\fermiDistrib`	ℱ
`\fermion`	ℱ	`\graphene`	⬡
`\graviton`	ℊ	`\hbond`	Ħ
`\hole`	h^+	`\interaction`	⇄
`\internalsym`	⊡	`\ion`	Ⓘ
`\ionicbond`	⊕	`\magnon`	⇝
`\maxwellDistrib`	𝔐	`\metalbond`	M̶
`\method`	Ϻ	`\muon`	μ^-
`\neutrino`	ν	`\neutron`	n^0
`\nucleus`	⁂	`\orbit`	⊸
`\phimeson`	ϕ	`\phimesonnull`	ϕ^0
`\phonon`	ℱ	`\pionminus`	π^-
`\pionnull`	π^0	`\pionplus`	π^+
`\plasmon`	~e~	`\polariton`	ẋ
`\polaron`	-∍ℱ	`\positron`	e^+
`\protein`	ʢ	`\proton`	p^+
`\quadrupole`	⌘	`\quark`	q
`\quarkb`	b	`\quarkc`	c
`\quarkd`	d	`\quarks`	s
`\quarkt`	t	`\quarku`	u
`\reference`	Ɍ	`\resistivity`	«
`\rhomesonminus`	ϱ^-	`\rhomesonnull`	ϱ^0

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Command	Symbol	Command	Symbol
\rhomesonplus	ϱ^+	\solid	⊞
\spin	⚄	\spindown	⚇
\spinup	⚅	\surface	⏢
\svrexample	卌	\svrphoton	$\not{f}$
\tachyon	$\not{t}$	\tauleptonminus	τ^-
\tauleptonplus	τ^+	\triplecovbond	⋘
\varphoton	$\not{\Upsilon}$	\water	⚉

Physics employs the language of mathematics to express ideas and facts. Nevertheless, in Physics certain letters and symbols have reserved meaning. The SVRsymbols[1] font contain some new ideograms for use in Physics. The symbols have been designed so to be intuitive, easy to identify and to remember. The package svrsymbols currently has no options and provides an interface to the font. In particular, it defines commands that work only in math mode and provide access to the various glyphs of the SVRsymbols font. These commands as well as the symbols each command corresponds to are shown in Table 1. In addition there are three more commands that can be used get size-variants of the ✯ symbol:

✯ → \bigassumption, ✯ → \biggassumption, ✯ → \Bigassumption.

2 The Source code

The first part of the code is the identification part.

```
⟨*svrsymbols⟩
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{svrsymbols}
          [2019/02/12 v.2.0b, New Symbols for Physics.]
```

The commands that follow define commands according to the NFSS necessary to access the font that contains the various glyphs. First we define a new font family and then the various variants. Since there are no variants, the commands use the "default" font.

```
\DeclareFontFamily{OML}{svr}{}
\DeclareFontShape{OML}{svr}{m}{it}{
   <-> SVRsymbols
}{}
\DeclareFontShape{OML}{svr}{b}{it}{
   <-> SVRsymbols
}{}
\DeclareFontShape{OML}{svr}{m}{sl}{<->ssub * svr/m/it}{}
\DeclareFontShape{OML}{svr}{bx}{it}{<->ssub * svr/b/it}{}
\DeclareFontShape{OML}{svr}{b}{sl}{<->ssub * svr/b/it}{}
\DeclareFontShape{OML}{svr}{bx}{sl}{<->ssub * svr/b/sl}{}
\DeclareSymbolFont{svrsymbols}{OML}{svr}{m}{it}
\SetSymbolFont{svrsymbols}{bold}{OML}{svr}{b}{it}
```

The commands that follow are the glyph access commands. Let us stress again that these commands can be used only in math mode.

[1]This version of the package is bundled with an OpenType version of the font so that people who use LibreOffice can also use it in their documents.

```
\DeclareMathSymbol{\method}{\mathord}{svrsymbols}{`A}
\DeclareMathSymbol{\orbit}{\mathord}{svrsymbols}{`B}
\DeclareMathSymbol{\atom}{\mathord}{svrsymbols}{`C}
\DeclareMathSymbol{\antiproton}{\mathord}{svrsymbols}{`D}
\DeclareMathSymbol{\antiquark}{\mathord}{svrsymbols}{`E}
\DeclareMathSymbol{\antiquarkb}{\mathord}{svrsymbols}{`F}
\DeclareMathSymbol{\antiquarkc}{\mathord}{svrsymbols}{`G}
\DeclareMathSymbol{\antiquarkd}{\mathord}{svrsymbols}{`H}
\DeclareMathSymbol{\antiquarks}{\mathord}{svrsymbols}{`I}
\DeclareMathSymbol{\antiquarkt}{\mathord}{svrsymbols}{`J}
\DeclareMathSymbol{\antiquarku}{\mathord}{svrsymbols}{`K}
\DeclareMathSymbol{\varphoton}{\mathord}{svrsymbols}{`L}
\DeclareMathSymbol{\antineutrino}{\mathord}{svrsymbols}{`M}
\DeclareMathSymbol{\neutrino}{\mathord}{svrsymbols}{`N}
\DeclareMathSymbol{\quark}{\mathord}{svrsymbols}{`O}
\DeclareMathSymbol{\quarkb}{\mathord}{svrsymbols}{`P}
\DeclareMathSymbol{\quarkc}{\mathord}{svrsymbols}{`Q}
\DeclareMathSymbol{\quarkd}{\mathord}{svrsymbols}{`R}
\DeclareMathSymbol{\quarks}{\mathord}{svrsymbols}{`S}
\DeclareMathSymbol{\quarkt}{\mathord}{svrsymbols}{`T}
\DeclareMathSymbol{\quarku}{\mathord}{svrsymbols}{`U}
\DeclareMathSymbol{\dipole}{\mathord}{svrsymbols}{`V}
\DeclareMathSymbol{\spindown}{\mathord}{svrsymbols}{`Z}
\DeclareMathSymbol{\electron}{\mathord}{svrsymbols}{`a}
\DeclareMathSymbol{\svrphoton}{\mathord}{svrsymbols}{`b}
\DeclareMathSymbol{\fermiDistrib}{\mathord}{svrsymbols}{`c}
\DeclareMathSymbol{\proton}{\mathord}{svrsymbols}{`d}
\DeclareMathSymbol{\nucleus}{\mathord}{svrsymbols}{`e}
\DeclareMathSymbol{\ion}{\mathord}{svrsymbols}{`f}
\DeclareMathSymbol{\neutron}{\mathord}{svrsymbols}{`g}
\DeclareMathSymbol{\hole}{\mathord}{svrsymbols}{`h}
\DeclareMathSymbol{\exciton}{\mathord}{svrsymbols}{`i}
\DeclareMathSymbol{\phonon}{\mathord}{svrsymbols}{`j}
\DeclareMathSymbol{\polaron}{\mathord}{svrsymbols}{`k}
\DeclareMathSymbol{\reference}{\mathord}{svrsymbols}{`l}
\DeclareMathSymbol{\positron}{\mathord}{svrsymbols}{`m}
\DeclareMathSymbol{\antiproton}{\mathord}{svrsymbols}{`n}
\DeclareMathSymbol{\spinup}{\mathord}{svrsymbols}{`o}
\DeclareMathSymbol{\plasmon}{\mathord}{svrsymbols}{`p}
\DeclareMathSymbol{\errorsym}{\mathord}{svrsymbols}{`q}
\DeclareMathSymbol{\water}{\mathord}{svrsymbols}{`r}
\DeclareMathSymbol{\graphene}{\mathord}{svrsymbols}{`s}
\DeclareMathSymbol{\solid}{\mathord}{svrsymbols}{`t}
\DeclareMathSymbol{\assumption}{\mathord}{svrsymbols}{`u}
\DeclareMathSymbol{\bigassumption}{\mathord}{svrsymbols}{"C8}
\DeclareMathSymbol{\biggassumption}{\mathord}{svrsymbols}{"C9}
\DeclareMathSymbol{\Bigassumption}{\mathord}{svrsymbols}{"CA}
\DeclareMathSymbol{\experimentalsym}{\mathord}{svrsymbols}{`v}
\DeclareMathSymbol{\antimuon}{\mathord}{svrsymbols}{`w}
\DeclareMathSymbol{\muon}{\mathord}{svrsymbols}{`x}
\DeclareMathSymbol{\antineutron}{\mathord}{svrsymbols}{`y}
\DeclareMathSymbol{\surface}{\mathord}{svrsymbols}{`z}
\DeclareMathSymbol{\fermion}{\mathord}{svrsymbols}{"A1}
\DeclareMathSymbol{\externalsym}{\mathord}{svrsymbols}{"A2}
\DeclareMathSymbol{\internalsym}{\mathord}{svrsymbols}{"A3}
\DeclareMathSymbol{\maxwellDistrib}{\mathord}{svrsymbols}{"A4}
```

```
\DeclareMathSymbol{\resistivity}{\mathord}{svrsymbols}{"A5}
\DeclareMathSymbol{\boseDistrib}{\mathord}{svrsymbols}{"A6}
\DeclareMathSymbol{\boson}{\mathord}{svrsymbols}{"A7}
\DeclareMathSymbol{\spin}{\mathord}{svrsymbols}{"C0}
\DeclareMathSymbol{\polariton}{\mathord}{svrsymbols}{"C1}
\DeclareMathSymbol{\conductivity}{\mathord}{svrsymbols}{"C2}
\DeclareMathSymbol{\bond}{\mathord}{svrsymbols}{"C3}
\DeclareMathSymbol{\covbond}{\mathord}{svrsymbols}{"C4}
\DeclareMathSymbol{\doublecovbond}{\mathord}{svrsymbols}{"C5}
\DeclareMathSymbol{\triplecovbond}{\mathord}{svrsymbols}{"C6}
\DeclareMathSymbol{\metalbond}{\mathord}{svrsymbols}{"C7}
\DeclareMathSymbol{\hbond}{\mathord}{svrsymbols}{"CB}
\DeclareMathSymbol{\svrexample}{\mathord}{svrsymbols}{"CC}
\DeclareMathSymbol{\magnon}{\mathord}{svrsymbols}{"CD}
\DeclareMathSymbol{\ionicbond}{\mathord}{svrsymbols}{"CE}
\DeclareMathSymbol{\tachyon}{\mathord}{svrsymbols}{"CF}
\DeclareMathSymbol{\adsorbent}{\mathord}{svrsymbols}{"D0}
\DeclareMathSymbol{\adsorbate}{\mathord}{svrsymbols}{"D1}
\DeclareMathSymbol{\anyon}{\mathord}{svrsymbols}{"D2}
\DeclareMathSymbol{\interaction}{\mathord}{svrsymbols}{"D3}
\DeclareMathSymbol{\quadrupole}{\mathord}{svrsymbols}{"D4}
\DeclareMathSymbol{\protein}{\mathord}{svrsymbols}{"D5}
\DeclareMathSymbol{\tauleptonplus}{\mathord}{svrsymbols}{"D6}
\DeclareMathSymbol{\tauleptonminus}{\mathord}{svrsymbols}{"D7}
\DeclareMathSymbol{\Bmesonplus}{\mathord}{svrsymbols}{"D9}
\DeclareMathSymbol{\Bmesonminus}{\mathord}{svrsymbols}{"DA}
\DeclareMathSymbol{\Bmesonnull}{\mathord}{svrsymbols}{"DB}
\DeclareMathSymbol{\Dmesonplus}{\mathord}{svrsymbols}{"DC}
\DeclareMathSymbol{\Dmesonminus}{\mathord}{svrsymbols}{"DD}
\DeclareMathSymbol{\Dmesonnull}{\mathord}{svrsymbols}{"DE}
\DeclareMathSymbol{\Tmesonplus}{\mathord}{svrsymbols}{"DF}
\DeclareMathSymbol{\Tmesonminus}{\mathord}{svrsymbols}{"E0}
\DeclareMathSymbol{\Tmesonnull}{\mathord}{svrsymbols}{"E1}
\DeclareMathSymbol{\Upsilonmeson}{\mathord}{svrsymbols}{"E2}
\DeclareMathSymbol{\phimeson}{\mathord}{svrsymbols}{"E3}
\DeclareMathSymbol{\phimesonnull}{\mathord}{svrsymbols}{"E4}
\DeclareMathSymbol{\rhomesonplus}{\mathord}{svrsymbols}{"E5}
\DeclareMathSymbol{\rhomesonminus}{\mathord}{svrsymbols}{"E6}
\DeclareMathSymbol{\rhomesonnull}{\mathord}{svrsymbols}{"E7}
\DeclareMathSymbol{\etameson}{\mathord}{svrsymbols}{"E8}
\DeclareMathSymbol{\etamesonprime}{\mathord}{svrsymbols}{"E9}
\DeclareMathSymbol{\pionplus}{\mathord}{svrsymbols}{"EA}
\DeclareMathSymbol{\pionminus}{\mathord}{svrsymbols}{"EB}
\DeclareMathSymbol{\pionnull}{\mathord}{svrsymbols}{"EC}
\DeclareMathSymbol{\Kaonplus}{\mathord}{svrsymbols}{"ED}
\DeclareMathSymbol{\Kaonminus}{\mathord}{svrsymbols}{"EE}
\DeclareMathSymbol{\Kaonnull}{\mathord}{svrsymbols}{"EF}
\DeclareMathSymbol{\Gluon}{\mathord}{svrsymbols}{"F0}
\DeclareMathSymbol{\Higgsboson}{\mathord}{svrsymbols}{"F1}
\DeclareMathSymbol{\Wbosonplus}{\mathord}{svrsymbols}{"F2}
\DeclareMathSymbol{\Wbosonminus}{\mathord}{svrsymbols}{"F3}
\DeclareMathSymbol{\Wboson}{\mathord}{svrsymbols}{"F4}
\DeclareMathSymbol{\Zboson}{\mathord}{svrsymbols}{"F5}
\DeclareMathSymbol{\Jpsimeson}{\mathord}{svrsymbols}{"F6}
\DeclareMathSymbol{\graviton}{\mathord}{svrsymbols}{"F7}
⟨/svrsymbols⟩
```