LaTeX Physics Package in MathJax
Mimicking Some of the Commands in LaTeX Physics Package

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Contents

1 LaTeX Physics Package

This extension is to mimick LaTeX Physics Package[1] in MathJax.

2 Commands not Working/Included

- Matrix Macros are not implemented yet
- Commands are not working whenever any one of these is true:
  - `*` modified command
  - `[]` modified command
  - variable no. of arguments
  - Best example containing all of the above: `\dv`, from `\dv{}` to `\dv*[]{}{}`

[1] http://www.ctan.org/pkg/physics

- Different names with the same commands are not implemented yet, but it is easy to be done.

3 MathJax Macro

The extension is equivalent to the following macro:

```
<script type="text/x-mathjax-config">
MathJax.Hub.Config({
  TeX: {
    Macros: {
pqty: ["{\(␣#1␣\)}",1],
bqty: ["{\[␣#1␣\]}",1],
Bqty: ["{\\{␣#1␣\\}}",1],
abs: ["{\\vert␣#1␣\\vert}",1],
norm: ["{\\vert\\vert␣#1␣\\vert\\vert}",1],
eval: ["{#1␣\\vert}",1],
order: ["{\\mathcal{O}␣\(␣#1␣\)}",1],
comm: ["{\[␣#1␣,␣#2␣\]}",2],
acomm: ["{\\{␣#1␣,␣#2␣\\}}",2],
vb: ["{\\boldsymbol{␣#1␣}}",1],
va: ["{\\vec{\\boldsymbol{␣#1␣}}}",1],
vu: ["{{\\boldsymbol{\\hat{␣#1␣}}}}",1],
vdot: ["{\\boldsymbol\\cdot}"],
cross: ["{\\boldsymbol\\times}"],
grad: ["{\\boldsymbol\\nabla}"],
div: ["{\\grad\\vdot}"],
curl: ["{\\grad\\cross}"],
laplacian: ["{\\nabla^2}"],
tr: ["{\\text{tr␣}}"],
Tr: ["{\\text{Tr␣}}"],
rank: ["{\\text{rank␣}}"],
erf: ["{\\text{erf␣}}"],
Res: ["{\\text{Res}}"],
pv: ["{\\mathcal{P}}"],
PV: ["{\\text{P.V.}}"],
Re: ["{\\text{Re}␣\\{␣#1␣\\}}",1],
Im: ["{\\text{Im}␣\\{␣#1␣\\}}",1],
qq: ["{\\quad\\text{␣#1␣}\\quad}",1],
qc: ["{\\text{,}\\quad}"],
qcc: ["{\\quad\\text{c.c.}\\quad}"],
qif: ["{\\quad\\text{if}\\quad}"],
qthen: ["{\\quad\\text{then}\\quad}"],
qelse: ["{\\quad\\text{else}\\quad}"],
qotherwise: ["{\\quad\\text{otherwise}\\quad}"],
qunless: ["{\\quad\\text{unless}\\quad}"],
qgiven: ["{\\quad\\text{given}\\quad}"],
qusing: ["{\\quad\\text{using}\\quad}"],
```

```
qassume: ["{\\quad\\text{assume}\\quad}"],
qsince: ["{\\quad\\text{since}\\quad}"],
qlet: ["{\\quad\\text{let}\\quad}"],
qfor: ["{\\quad\\text{for}\\quad}"],
qall: ["{\\quad\\text{all}\\quad}"],
qeven: ["{\\quad\\text{even}\\quad}"],
qodd: ["{\\quad\\text{odd}\\quad}"],
qinteger: ["{\\quad\\text{integer}\\quad}"],
qand: ["{\\quad\\text{and}\\quad}"],
qor: ["{\\quad\\text{or}\\quad}"],
qas: ["{\\quad\\text{as}\\quad}"],
qin: ["{\\quad\\text{in}\\quad}"],
dd: ["{\\text{d}}"],
dv: ["{\\frac{\\text{d}}{␣#1␣}}{\\text{d}{␣#2␣}}}",2],
pdv: ["{\\frac{\\partial{␣#1␣}}{\\partial{␣#2␣}}}",2],
var: ["{\\delta}"],
fdv: ["{\\frac{\\delta{␣#1␣}}{\\delta{␣#2␣}}}",2],
ket: ["{\\vert␣{␣#1␣}␣\\rangle}",1],
bra: ["{\\langle␣{␣#1}␣\\vert}",1],
braket: ["{\\langle␣{#1}␣\\vert␣{␣#2}␣\\rangle}",2],
ketbra: ["{\\vert␣{␣#1␣}␣\\rangle\\langle␣{␣#2}␣\\vert}",2],
ev: ["{\\langle␣{#1␣}␣\\rangle}",1],
mel: ["{\\langle{␣#1␣}\\vert{␣#2␣}\\vert{#3}\\rangle}",3]
    }
  }
});
</script>
```

4 Test

You can use the following table to test which commands in the Physics packages are available and working. Note, some of the commands are not working yet.

Automatic Bracing	Code
(a)	`\pqty{}`
$[a]$	`\bqty{}`
$\{a\}$	`\Bqty{}`
$\lvert a\rvert$	`\abs{}`
$\lVert a\rVert$	`\norm{}`
$a\big\rvert_1^2$	`\eval{}_1^2`
$\mathcal{O}(x)$	`\order{}`
$[A, B]$	`\comm{A}{B}`
$\{A, B\}$	`\acomm{A}{B}`

Vector Notation	Code
$\mathbf{a}$	`\vb{}`
ψ	`\vb{}`
$\boldsymbol{a}$	`\vb*{}`
$\boldsymbol{\psi}$	`\vb*{}`
$\vec{\mathbf{a}}$	`\va{}`
$\vec{\psi}$	`\va{}`
$\vec{\boldsymbol{a}}$	`\va*{}`
$\vec{\boldsymbol{\psi}}$	`\va*{}`
$\hat{\mathbf{a}}$	`\vu{}`
$\hat{\psi}$	`\vu{}`
$\hat{\boldsymbol{a}}$	`\vu*{}`
$\hat{\boldsymbol{\psi}}$	`\vu*{}`
$\cdot$	`\vdot`
$\times$	`\cross`
$\boldsymbol{\nabla}(\psi)$	`\grad()`
$\boldsymbol{\nabla}[\psi]$	`\grad[]`
$\boldsymbol{\nabla}\psi$	`\grad{}`
$\boldsymbol{\nabla}\cdot(\psi)$	`\div()`
$\boldsymbol{\nabla}\cdot[\psi]$	`\div[]`
$\boldsymbol{\nabla}\cdot\psi$	`\div{}`
$\boldsymbol{\nabla}\times(\psi)$	`\curl()`
$\boldsymbol{\nabla}\times[\psi]$	`\curl[]`
$\boldsymbol{\nabla}\times\psi$	`\curl{}`
$\nabla^2(\psi)$	`\laplacian()`
$\nabla^2[\psi]$	`\laplacian[]`
$\nabla^2\psi$	`\laplacian{}`

Operators	Code
$\sin x$	`\sin`
$\sin(x)$	`\sin()`
$\sin^2(x)$	`\sin[2]()`
$\operatorname{tr}\rho$	`\tr`
$\operatorname{Tr}\rho$	`\Tr`
$\operatorname{rank} M$	`\rank`
$\operatorname{erf}(x)$	`\erf()`
$\operatorname{Res}[f(z)]$	`\Res[]`
$\mathcal{P}\int f(z)\,\mathrm{d}z$	`\pv{}`
$\mathrm{P.V.}\int f(z)\,\mathrm{d}z$	`\PV{}`
$\operatorname{Re}\{z\}$	`\Re{}`
$\operatorname{Im}\{z\}$	`\Im{}`

Quick Quad Text	Code
some texts	`\qq{}`
some texts	`\qq*{}`
,	`\qc`
c.c.	`\qcc`
if	`\qif`
then	`\qthen`
else	`\qelse`
otherwise	`\qotherwise`
unless	`\qunless`
given	`\qgiven`
using	`\qusing`
assume	`\qassume`
since	`\qsince`
let	`\qlet`
for	`\qfor`
all	`\qall`
even	`\qeven`
odd	`\qodd`
integer	`\qinteger`
and	`\qand`
or	`\qor`
as	`\qas`
in	`\qin`

Derivatives	Code
$\mathrm{d}x$	`\dd{}`
d^3x	`\dd[3]{x}`
$\mathrm{d}(\cos\theta)$	`\dd()`
$\frac{\mathrm{d}}{\mathrm{d}x}$	`\dv{}`
$\frac{\mathrm{d}f}{\mathrm{d}x}$	`\dv{}{x}`
$\frac{\mathrm{d}^k f}{\mathrm{d}x^n}$	`\dv[]{f}{x}`
$\frac{\mathrm{d}}{\mathrm{d}x}\left(x^2+x^3\right)$	`\dv{x}()`
$\mathrm{d}f/\mathrm{d}x$	`\dv*{}{x}`
$\frac{\partial}{\partial x}$	`\pdv{}`
$\frac{\partial f}{\partial x}$	`\pdv{}{x}`
$\frac{\partial^k f}{\partial x^n}$	`\pdv[]{f}{x}`
$\frac{\partial}{\partial x}\left(x^2+x^3\right)$	`\pdv{x}()`
$\frac{\partial^2 f}{\partial x \partial y}$	`\pdv{}{x}{y}`
$\delta F[g(x)]$	`\var{}`
$\delta(E-TS)$	`\var()`
$\frac{\delta}{\delta g}$	`\fdv{}`
$\frac{\delta F}{\delta g}$	`\fdv{}{g}`
$\frac{\delta}{\delta V}(E-TS)$	`\fdv{V}()`
$\delta F/\delta x$	`\fdv*{}{x}`

Dirac Bracket Notation	Code
$\ket{\psi}$	`\ket{}`
$\ket*{\psi}$	`\ket*{}`
$\bra{\psi}$	`\bra{}`
$\bra*{\psi}$	`\bra*{}`
$\braket{a}{b}$	`\braket{a}{b}`
$\braket*{a}{b}$	`\braket*{a}{b}`
$\braket{\psi}{\psi}$	`\braket{}`
$\ketbra{a}{b}$	`\ketbra{a}{b}`
$\ketbra*{a}{b}$	`\ketbra*{a}{b}`
$\ketbra{\psi}{\psi}$	`\ketbra{}`
$\ev{\psi}$	`\ev{}`
$\ev{\psi}{A}{\psi}$	`\ev{}{\psi}`
$\ev*{\psi}$	`\ev*{}`
$\ev**{\psi}$	`\ev**{}`
$\mel{m}{A}{n}$	`\mel{m}{}{n}`
$\mel*{m}{A}{n}$	`\mel*{m}{}{n}`
$\mel**{m}{A}{n}$	`\mel**{m}{}{n}`