Physics 宏包

各种括号

```
\qty( \frac{a}{b} )
\qty[ \frac{a}{b} ]
\qty| \frac{a}{b} |
\qty{ \frac{a}{b} }
```

$$\left(\frac{a}{b}\right) \left[\frac{a}{b}\right] \left|\frac{a}{b}\right| \left\{\frac{a}{b}\right\}$$

```
\pqty{ \frac{a}{b} }
\bqty{ \frac{a}{b} }
\vqty{ \frac{a}{b} }
\bqty{ \frac{a}{b} }
```

$$\left(\frac{a}{b}\right) \left[\frac{a}{b}\right] \left|\frac{a}{b}\right| \left\{\frac{a}{b}\right\}$$

```
\abs{ \frac{a}{b} } \quad
\norm{ \frac{a}{b} } \quad
\eval( x |_0^\infty \quad
\eval[ x |_0^\infty \nonmuber
```

$$\left|\frac{a}{b}\right| \quad \left\|\frac{a}{b}\right\| \quad \left(x\right|_0^\infty \quad \left[x\right|_0^\infty$$

```
\order{x^2}
\comm{A}{B}
\comm\Big{A}{B}
\anticommutator{A}{B}
\poissonbracket\Big{A}{B}
```

$$\mathcal{O}\left(x^{2}\right)\left[A,B\right]\left[A,B\right]\left\{A,B\right\}$$

向量

```
\label{eq:continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous_continuous
```

 $\cdots \times \times \times$

▽ 算子

```
\grad(\frac{f}{g}) \\
\div[ \vb*{A} ] \\
\curl{ \vb*{A} } \\
\laplacian{\Psi}
```

$$oldsymbol{
abla} egin{pmatrix} oldsymbol{
abla} \left(rac{f}{g}
ight) \ oldsymbol{
abla} \cdot [oldsymbol{A}] \ oldsymbol{
abla} imes oldsymbol{A} \
abla^2 \Psi \end{cases}$$

正体算符

```
\sin x \quad
\sin^2x \quad
\sin[3](x) \nonumber
```

 $\sin x \quad \sin^2 x \quad \sin^3(x)$

```
\exp(x) \quad
\log(x) \quad
\ln(x) \quad
\det(x) \quad
\Pr(x) \nonumber
```

 $\exp(x) - \log(x) - \ln(x) - \det(x) - \Pr(x)$

```
\tr{\vb{A}} \quad
\Tr{\vb{A}} \quad
\rank{\vb{A}} \nonumber
```

 $\operatorname{tr} \mathbf{A} \quad \operatorname{Tr} \mathbf{A} \quad \operatorname{rank} \mathbf{A}$

```
\Res{f(z)} \quad
\Re{z} \quad
\Im{z} \nonumber
```

$$\operatorname{Res} \{f(z)\} \quad \operatorname{Re} \{z\} \quad \operatorname{Im} \{z\}$$

$$\mathcal{P} \int f(z) dz$$
 P.V. $\int f(z) dz$

带铅空文本

```
f(x) \textup{function} f(x) \\
f(x) \qq{functoin} f(x) \\
f(x) \qq*{function} f(x) \\
```

$$f(x)$$
function $f(x)$
 $f(x)$ function $f(x)$
 $f(x)$ function $f(x)$

特殊宏

```
f(x) \qcomma g(x) \\
f(x) \qif g(x) \\
\qthen \qelse \qgiven
```

$$f(x), \quad g(x)$$

$$f(x) \quad \text{if} \quad g(x)$$
 then else given

导数

\dd[3]{x} \quad
\dd(\cos\theta)

$$d^3x \quad d(\cos\theta)$$

 $\dv^{y}{x} \quad quad \\ \dv[2]{x} \quad (\dv[n]{y}{x})$

$$\mathrm{d}y/\mathrm{d}x \quad \frac{\mathrm{d}^2}{\mathrm{d}x^2} \left(\frac{\mathrm{d}^n y}{\mathrm{d}x^n} \right)$$

偏导

\pdv*{f}{x} \quad
\pdv{f}{x}{y} \nonumber

$$\partial f/\partial x = rac{\partial^2 f}{\partial x \partial y}$$

泛函

\var{F[g(x)]} \quad
\var(E-TS) \nonumber

$$\delta F[g(x)] \quad \delta \left(E - TS\right)$$

\fdv*{F}{x} \quad
\fdv[2]{g} \quad
\fdv[3]{F}{g} \\
\fdv{V}(E-TS) \nonumber

$$\delta F/\delta x = rac{\delta^2}{\delta g^2} = rac{\delta^3 F}{\delta g^3}$$
 $rac{\delta}{\delta V}(E-TS)$