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}
```

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

向量

```
\vb{a} ~ \vb*{a} ~ \vb*{\theta} \\
\va{a} ~ \va*{a} ~ \va*{\theta} \\
\vu{r} ~ \vu*{r} ~ \vu*{\theta} \\
\cdot \vdot \times \cross \cp
```

$$\mathbf{a}\ \boldsymbol{a}\ \boldsymbol{\theta}$$

$$\vec{\mathbf{a}}\ \vec{\boldsymbol{a}}\ \vec{\boldsymbol{\theta}}$$

$$\hat{\mathbf{r}}\ \hat{\boldsymbol{r}}\ \hat{\boldsymbol{\theta}}$$

$$\cdot\cdot \times \times\times$$

∇ 算子

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

$$\boldsymbol{\nabla}\left(\frac{f}{g}\right)$$

$$\boldsymbol{\nabla}\cdot[\boldsymbol{A}]$$

$$\boldsymbol{\nabla}\times\boldsymbol{A}$$

$$\nabla^2\Psi$$

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
```

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

```
\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
```

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

```
\pv{ \int f(z)\dd{z} } \quad
\PV{ \int f(z)\dd{z} } \nonumber
```

$$\mathcal{P}\int f(z)\,\mathrm{d}z \quad \mathrm{P.V.}\int f(z)\,\mathrm{d}z$$

带铅空文本

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

$$f(x)\text{function}f(x)$$
$$f(x) \quad \text{functoin} \quad f(x)$$
$$f(x)\text{function} \quad f(x)$$

特殊宏

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

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

导数

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

$$\mathrm{d}^3x \quad \mathrm{d}\left(\cos\theta\right)$$

```
\dv*{y}{x} \quad
\dv[2]{x} (\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
```

$$\partial f/\partial x \quad \frac{\partial^2 f}{\partial x \partial y}$$

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
```

$$\delta F/\delta x \quad \frac{\delta^2}{\delta g^2} \quad \frac{\delta^3 F}{\delta g^3}$$

$$\frac{\delta}{\delta V}(E - TS)$$