Основи на LaTeX

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Tables

Figures

Mathematical expressions

1 Tables

2 Figures

3 Mathematical expressions

Tables

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Mathematical expressions

1 Tables

2 Figures

3 Mathematical expressions

More on tables

```
\documentclass[12pt,a4paper]{article}
\pagestyle{empty}
\begin{document}
\begin{table}[h!]
\caption{
MF and TSC results for the tricritical points of
planar rotator and Heisenberg LG models with
$\lambda=0$.\label{critical}}
\vspace*{0.5cm}
\begin{tabular}{lllll}
\hline
\hline
Method & Model            &$\Theta$  &    $\mu$     & $\rho$        \\
\hline
MF     & planar rotator   & $1.5$    &   $+0$       &  $0.5$        \\
TSC    & planar rotator   & $1.2087$ &   $-0.5835$  &  $0.5033$     \\
MF     & Heisenberg       & $1.2$    &   $+0.4866$  &  $0.6$        \\
TSC    & Heisenberg       & $0.9664$ &   $-0.1931$  &  $0.6036$     \\
\hline
\hline
\end{tabular}
\end{table}

\ldots

In Table \ref{critical} \ldots

\ldots

\end{document}
```

More on tables

Table 1: MF and TSC results for the tricritical points of planar rotator and Heisenberg LG models with $\lambda = 0$.

Method	Model	Θ	μ	ρ
MF	planar rotator	1.5	$+0$	0.5
TSC	planar rotator	1.2087	-0.5835	0.5033
MF	Heisenberg	1.2	$+0.4866$	0.6
TSC	Heisenberg	0.9664	-0.1931	0.6036

. . .

In Table 1 . . .

. . .

More on tables

```
\documentclass[12pt,a4paper]{article}
\pagestyle{empty}
\begin{document}
\begin{table}[hpb!]
\caption{Calculated and experimental values of
the elastic constants for Al, Ni and their alloys.
The computations were performed within the SMA method.}
\label{elastic}
\begin{center}
\begin{tabular}{|c||c|c|c|c||c|c|}
\hline
& \multicolumn{3}{|c||}{Calculated (GPa)} &
                        \multicolumn{3}{|c|}{Experimental (GPa)}  \\
\hline
\hline
Compound&$C_{11}$&$C_{12}$&$C_{44}$&$C_{11}$&$C_{12}$&$C_{44}$   \\
\hline
Al       &  71  &  92  &  61  &  58  &  76  &  107 &  61  &  29  \\
\hline
NiAl     & 222  & 261  & 203  &  80  & 158  &  199 & 137  & 116  \\
\hline
Ni$_3$Al & 232  & 281  & 207  &  96  & 177  &  230 & 150  & 131  \\
\hline
Ni       & 255  & 329  & 218  & 148  & 188  &  261 & 151  & 132  \\
\hline
\hline
\end{tabular}
\end{center}
\end{table}

\ldots

In Table \ref{elastic} \ldots
```

More on tables

Table 1: Calculated and experimental values of bulk modulus B and elastic constants for Al, Ni and their alloys. The computations were performed within the SMA method.

	Calculated (GPa)				Experimental (GPa)			
Compound	B	C_{11}	C_{12}	C_{44}	B	C_{11}	C_{12}	C_{44}
Al	71	92	61	58	76	107	61	29
NiAl	222	261	203	80	158	199	137	116
Ni_3Al	232	281	207	96	177	230	150	131
Ni	255	329	218	148	188	261	151	132

...

In Table 1 ...

More on tables

```
\documentclass[12pt,a4paper]{article}
\pagestyle{empty}
\begin{document}
\begin{table}[hpb!]
\caption{ Computed properties of bulk Al along with experimental,
{\it ab initio} data, and EAM potential results}\label{results}
\begin{center}
\begin{tabular}{lccc}
\hline
\hline
                    & Experiment & Present & EAM      \\
                    & ab initio  & work    &          \\
\hline
\multicolumn{4}{c}{Calculated (GPa)} \\
\hline
$a_0$(\AA)          &    4.05    &  3.995  &  4.05    \\
$E_0$(eV/atom)      &   -3.36    &  -3.34  & -3.36    \\
$B(10^{12}Pa)$      &    0.79    &  0.73   &  0.79    \\
$c_{11}(10^{12}$Pa) &    1.14    &  0.92   &  1.14    \\
$c_{12}(10^{12}$Pa) &    0.619   &  0.63   &  0.616   \\
$c_{44}(10^{12}$Pa) &    0.316   &  0.48   &  0.316   \\
\hline
\multicolumn{4}{c}{Phonon frequencies:} \\
\hline
\ldots              &   \ldots   & \ldots  &  \ldots \\
\hline
\hline
\end{tabular}
\end{center}
\end{table}

\ldots

In Table \ref{results} \ldots
```

More on tables

Table 1: Computed properties of bulk Al along with experimental, *ab initio* data, and EAM potential results

	Experiment ab initio	Present work	EAM
Calculated (GPa)			
a_0(Å)	4.05	3.995	4.05
E_0(eV/atom)	-3.36	-3.34	-3.36
$B(10^{12}Pa)$	0.79	0.73	0.79
$c_{11}(10^{12}$Pa)	1.14	0.92	1.14
$c_{12}(10^{12}$Pa)	0.619	0.63	0.616
$c_{44}(10^{12}$Pa)	0.316	0.48	0.316
Phonon frequencies:			
...	...	...	...

...

In Table 1 ...

1 Tables

2 Figures

3 Mathematical expressions

Figures

```
\usepackage[driver]{graphicx}
```

```
\begin{figure}
\includegraphics[angle=30,width=0.4\textwidth]{file.ext}
\caption{Ice}
\end{figure}
```

- **width** – scale graphic to the specified width
- **height** – scale graphic to the specified height
- **angle** – rotate graphic counterclockwise
- **scale** – scale graphic

ext = png, jpg, pdf, eps

Figures

```
\begin{figure}
\includegraphics[angle=30,width=0.4\textwidth]{aylesice.jpg}
\caption{Ice}
\end{figure}
```

Figure: Ice

Figures

```
\begin{figure}
\includegraphics[width=0.3\textwidth]{aylesice.jpg}
\hspace{0.2cm}
\includegraphics[width=0.3\textwidth]{antarctica.jpg}
\hspace{0.2cm}
\includegraphics[width=0.3\textwidth]{evaporation.jpg}
\caption{States of Matter}
\end{figure}
```

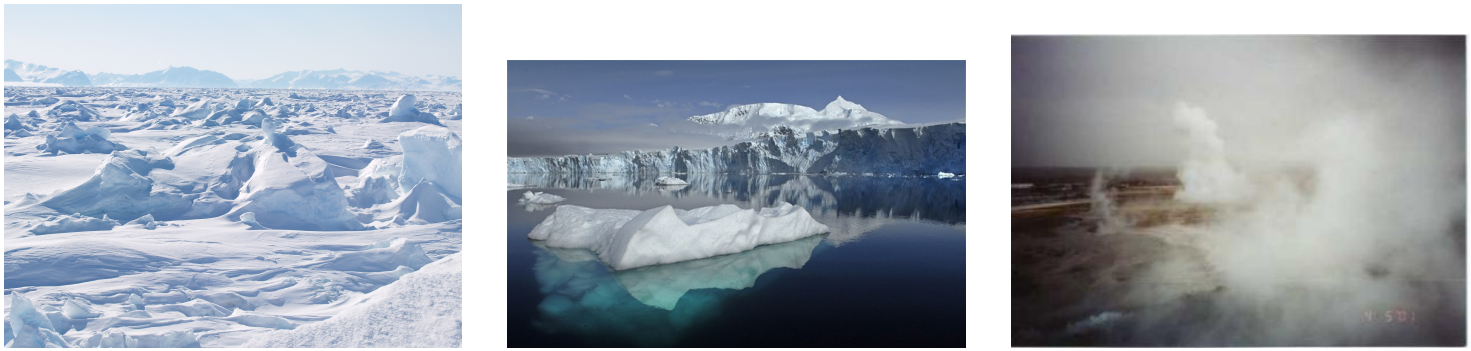

Figure: States of Matter

Figures

```
\begin{figure}
\resizebox{0.5\columnwidth}{!}{\includegraphics{aylesice.jpg}}
\caption{Ice}
\end{figure}
```

Figure: Ice

Figures

```
\begin{figure}
\resizebox{0.3\columnwidth}{!}{\includegraphics{aylesice.jpg}}
\hspace{0.2cm}
\resizebox{0.3\columnwidth}{!}{\includegraphics{antarctica.jpg}}
\hspace{0.2cm}
\resizebox{0.3\columnwidth}{!}{\includegraphics{evaporation.jpg}}
\caption{States of Matter}
\end{figure}
```



Figure: States of Matter

Figures

```
\begin{figure}
\resizebox{0.3\columnwidth}{!}{\includegraphics{aylesice.jpg}}   \\
%\hspace{0.2cm}
\resizebox{0.3\columnwidth}{!}{\includegraphics{antarctica.jpg}}
\hspace{0.2cm}
\resizebox{0.3\columnwidth}{!}{\includegraphics{evaporation.jpg}}
\caption{States of Matter}
\end{figure}
```

Figure: States of Matter

1 Tables

2 Figures

3 Mathematical expressions

Single equations

```
\documentclass[12pt,a4paper]{article}
\pagestyle{empty}
\usepackage{amsmath}
\begin{document}
Add $a$ squared and $b$ squared
to get $c$ squared. Or, using
a more mathematical approach
\begin{equation}
a^2 + b^2 = c^2
\end{equation}
Einstein says
\begin{equation}
E = mc^2 \label{clever}
\end{equation}
He didn t say
\begin{equation}
1 + 1 = 3 \tag{dumb}
\end{equation}
This is a reference to \eqref{clever}.
```

Add a squared and b squared to get c squared. Or, using a more mathematical approach

$$a^2 + b^2 = c^2 \tag{1}$$

Einstein says

$$E = mc^2 \tag{2}$$

He didn’t say

$$1 + 1 = 3 \tag{dumb}$$

This is a reference to (2).

Simple equations

```
This is text style:
$\lim_{n \to \infty}
\sum_{k=1}^n \frac{1}{k^2}
= \frac{\pi^2}{6}$.
And this is display style:
\begin{equation}
\lim_{n \to \infty}
\sum_{k=1}^n \frac{1}{k^2}
= \frac{\pi^2}{6}
\end{equation}
```

This is text style: $\lim_{n\to\infty} \sum_{k=1}^{n} \frac{1}{k^2} = \frac{\pi^2}{6}$.
And this is display style:

$$\lim_{n\to\infty} \sum_{k=1}^{n} \frac{1}{k^2} = \frac{\pi^2}{6} \qquad (3)$$

Simple equations

```
Add $a$ squared and $b$ squared
to get $c$ squared. Or, using
a more mathematical approach
\begin{equation*}
a^2 + b^2 = c^2
\end{equation*}
or you can type less for the
same effect:
\[ a^2 + b^2 = c^2 \]
```

Add a squared and b squared to get c squared. Or, using a more mathematical approach

$$a^2 + b^2 = c^2$$

or you can type less for the same effect:

$$a^2 + b^2 = c^2$$

Simple equations

```
$p^3_{ij} \qquad
m_\text{Knuth}\qquad
\sum_{k=1}^3 k \\[5pt]
a^x+y \neq a^{x+y}\qquad
e^{x^2} \neq {e^x}^2$
```

$$p^3_{ij} \qquad m_{\text{Knuth}} \qquad \sum_{k=1}^3 k$$

$$a^x + y \neq a^{x+y} \qquad e^{x^2} \neq e^{x2}$$

```
\begin{equation*}
\lim_{x \rightarrow 0}
\frac{\sin x}{x}=1
\end{equation*}
```

$$\lim_{x \to 0} \frac{\sin x}{x} = 1$$

```
\begin{equation*}
\underbrace{\overbrace{a+b+c}^6
\cdot \overbrace{d+e+f}^9}
_\text{meaning of life} = 42
\end{equation*}
```

$$\underbrace{\overbrace{a+b+c}^{6} \cdot \overbrace{d+e+f}^{9}}_{\text{meaning of life}} = 42$$

Simple equations

```
\begin{equation*}
\sum_{i=1}^n \qquad
\int_0^{\frac{\pi}{2}} \qquad
\prod_\epsilon
\end{equation*}
```

$$\sum_{i=1}^{n} \qquad \int_{0}^{\frac{\pi}{2}} \qquad \prod_{\epsilon}$$

```
In display style:
\begin{equation*}
3/8 \qquad \frac{3}{8}
\qquad \tfrac{3}{8}
\end{equation*}
```

In display style:

$$3/8 \qquad \frac{3}{8} \qquad \tfrac{3}{8}$$

```
In text style:
$1\frac{1}{2}$~hours \qquad
$1\dfrac{1}{2}$~hours
```

In text style: $1\frac{1}{2}$ hours $1\dfrac{1}{2}$ hours