

桑德國際有限公司

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A $\mathbf{v} \in \mathbb{R}^n$ is called a *unit vector* if $\|\mathbf{v}\|_2 = 1$. For any vector $\mathbf{v} \in \mathbb{R}^n$, the unit vector in the direction of $\mathbf{v}$ is $\frac{\mathbf{v}}{\|\mathbf{v}\|_2}$.

Figure 3.7 shows the $\mathbf{k}$ dependence of the energy bands $\epsilon_{\mathbf{k}}^{(s)}$ for $s = 1, 2, 3$ in the Brillouin zone of the simple cubic lattice. The bands are labeled 1, 2, and 3 in the order of increasing energy. The bands are separated by gaps, and the energy increases as the wave vector $\mathbf{k}$ moves away from the center of the Brillouin zone.

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