

$$\vec{S}\in\vec{R^3}\\ \vec{S}=(S_x,S_y,S_z)\\ S_{x_i}\\ \hat{x_i}$$

$$\vec{S}\\ R^3_n(S)=\vec{S}\cdot\vec{n}\\ S_n\\ [\vec{S}\\ \vec{n}\\ R^3\\ \vec{n}\\ \vec{S}\\ S^n_n\\ S_n\\ \vec{S}$$

$$\hat{n}\\ m_{pat-ble}\\ S^n_m\\ R^3\\ S_n\\ S_n\\ S_n\\ S_n\\ q_{lan-tized}\\ S^n_x\\ S_z\\ \hat{n}\\ m\\ S_m\\ m_{pat-ble}\\ S^n_m\\ \psi\\ \mathcal{H}\\ \frac{1}{2}\psi\in\mathcal{H}\psi\{\alpha+s_z+\beta-s_z\}$$

$$(1) \quad \alpha,\beta\in C\quad \mathcal{H}$$

$$\psi\\ S\\ A\\ \mathcal{H}\\ A\\ A_{S_z}\\ \dot{z}\\ \frac{\hbar}{2}10\\ 0-\\ 1\\ z\\ (S_z=\frac{\hbar}{2})\\ \psi=\\ +_{S_z}\dot{z}\\ 0\\ (S_z=\frac{-\hbar}{2})\\ \psi=\\ -_{S_z}\dot{z}\\ 0\\ 1\\ z\\ S_x\\ S_z\\ \dot{x}\\ \frac{\hbar}{2}01\\ 10\\ x\\ (S_x=\frac{\hbar}{2})$$