

Unveiling the Link Between Fractional Schrödinger Equation and Light Propagation in Honeycomb Lattice

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$$i\frac{\partial\psi}{\partial z} - \left(-\frac{\partial^2}{\partial x^2} - \frac{\partial^2}{\partial y^2}\right)^{1/2}\psi = 0$$

$$-\partial_x + i\partial_y \begin{bmatrix} a \\ b \end{bmatrix} = 0$$

$$i\frac{\partial}{\partial z} \begin{bmatrix} a \\ b \end{bmatrix} - D \begin{bmatrix} \partial_x + i\partial_y \\ \partial_x - i\partial_y \end{bmatrix} \begin{bmatrix} a \\ b \end{bmatrix} = 0$$