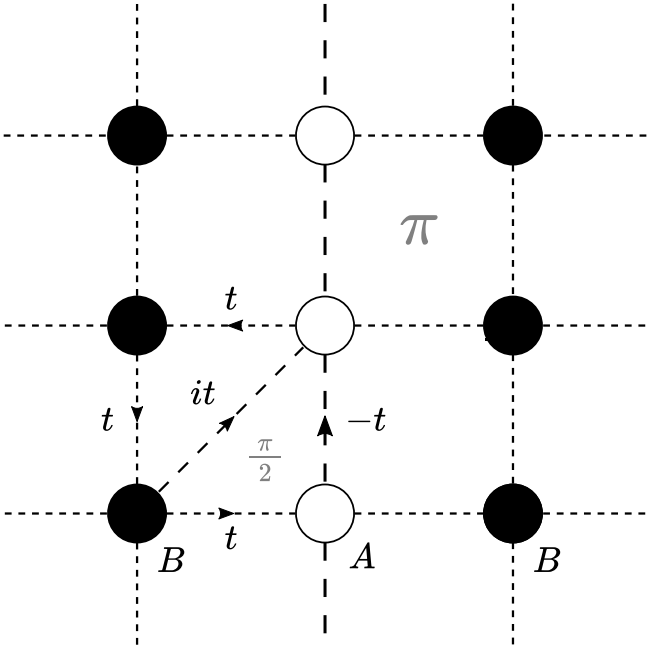

$$\mathbf{c} = a(\hat{\mathbf{x}} + \hat{\mathbf{y}})$$

$$H_r = \sum_{<ij>} \begin{bmatrix} a_{r_j}^\dagger & b_{r_j}^\dagger \end{bmatrix} \begin{bmatrix} -t & t \\ t & t \end{bmatrix} \begin{bmatrix} a_{r_i} \\ b_{r_i} \end{bmatrix}$$

$$+ \sum_{<<ij>>} \begin{bmatrix} a_{r_j}^\dagger & b_{r_j}^\dagger \end{bmatrix} \begin{bmatrix} 0 & it' \\ -it' & 0 \end{bmatrix} \begin{bmatrix} a_{r_i} \\ b_{r_i} \end{bmatrix}$$