

2016/10/12 (4)

기체영 교수님 Sr_2IrO_4 Hamiltonian.

$$H = \epsilon_k^a \tau_0 \sigma_0 + \epsilon_k^{\text{ad}} \tau_x + \epsilon_k^{\prime\text{ad}} \tau_y \sigma_z$$

$$= \begin{pmatrix} \epsilon_k^a & \epsilon_k^{\text{ad}} - i \epsilon_k^{\prime\text{ad}} & 0 & 0 \\ \epsilon_k^{\text{ad}} + i \epsilon_k^{\prime\text{ad}} & \epsilon_k^a & 0 & 0 \\ 0 & 0 & \epsilon_k^a & \epsilon_k^{\text{ad}} + i \epsilon_k^{\prime\text{ad}} \\ 0 & 0 & \epsilon_k^{\text{ad}} - i \epsilon_k^{\prime\text{ad}} & \epsilon_k^a \end{pmatrix}$$

$$\epsilon_k^a = 4t_n \cos(k_x) \cos(k_y) + 2t_{nn} [\cos(2k_x) + \cos(2k_y)]$$

$$\epsilon_k^{\text{ad}} = 2t_p [\cos(k_x) + \cos(k_y)]$$

$$\epsilon_k^{\prime\text{ad}} = 2t_p' [\cos(k_x) + \cos(k_y)]$$

$$t_n = -0.067, \quad t_{nn} = 0.033, \quad t_p = -0.57, \quad t_p' = 0.10$$