Quiz 10

Monday, May 1, 2017 10:37 AM

Calculating Dispersion Relations for LCAO states

The dispersion relation, $E(\vec{k})$, for 2d LCAO states contains factors $\vec{k}\cdot(\vec{R}_{near} - \vec{R}')$, where $\vec{k} = \begin{bmatrix} k_x \\ k_y \end{bmatrix}$.

$\vec{R}_{near}$ is any lattice vector pointing to a nearest neighbor of $\vec{R}'$. Find all possible values of $\vec{k}\cdot(\vec{R}_{near} - \vec{R}')$ for the triangular Bravais lattice shown below.