



$$E(k) - E(k+q) = \hbar\omega(q)$$

$$c_{k+q}^\dagger c_k a_{-q}^\dagger \text{ or } c_{k+q}^\dagger c_k a_q$$

$$\Downarrow$$

$$c_{k+q}^\dagger c_k (a_q + a_{-q}^\dagger)$$

