$$\tilde{p}_{1} - \frac{q}{2} \qquad \tilde{p}_{1} + \frac{q}{2}$$

$$\tilde{n}_{2} + \frac{q}{2} \rightarrow \tilde{p}_{1} + \frac{q}{2}, \tilde{p}_{2} - \frac{q}{2}) = \tilde{p}_{2} + \frac{q}{2} \qquad \tilde{p}_{2} - \frac{q}{2}$$