

Diagrammatic representation of the transition $T_{\ell m}(Q)$ and its decomposition into a sum of diagrams involving wavy and loop interactions.

The first diagram shows the transition $T_{\ell m}(Q)$ between states α and β with momenta $k - Q/2$ and $k' - Q/2$ on the top line, and $k + Q/2$ and $k' + Q/2$ on the bottom line. The transition is represented by a yellow shaded box labeled $T_{\ell m}(Q)$.

The second diagram shows the decomposition of $T_{\ell m}(Q)$ into a sum of two terms:

- The first term is a diagram with a wavy line connecting the top and bottom lines. The top line has momenta $k - Q/2$ and $k' - Q/2$ and labels α and β . The bottom line has momenta $k + Q/2$ and $k' + Q/2$ and labels α and β . The wavy line connects the top and bottom lines, and the transition is labeled $\phi_m(k')$.
- The second term is a diagram with a wavy line connecting the top and bottom lines. The top line has momenta $k - Q/2$ and $k' - Q/2$ and labels α and β . The bottom line has momenta $k + Q/2$ and $k' + Q/2$ and labels α and β . The wavy line connects the top and bottom lines, and the transition is labeled $\phi_\ell(k)$.

The third diagram shows the transition $T_{\ell n}(Q)$ between states α and β with momenta $p - Q/2$ and $k' - Q/2$ on the top line, and $p + Q/2$ and $k' + Q/2$ on the bottom line. The transition is represented by a green shaded box labeled $\Pi_{\ell n}(Q)$.

The fourth diagram shows the transition $T_{nm}(Q)$ between states α and β with momenta $p - Q/2$ and $k' - Q/2$ on the top line, and $p + Q/2$ and $k' + Q/2$ on the bottom line. The transition is represented by a yellow shaded box labeled $T_{nm}(Q)$.

The fifth diagram shows a loop diagram with a wavy line connecting the top and bottom lines. The top line has momenta $k - Q/2$ and $k' - Q/2$ and labels α and β . The bottom line has momenta $k + Q/2$ and $k' + Q/2$ and labels α and β . The wavy line connects the top and bottom lines, and the transition is labeled $\phi_m(k')$.

The sixth diagram shows a loop diagram with a wavy line connecting the top and bottom lines. The top line has momenta $k - Q/2$ and $k' - Q/2$ and labels α and β . The bottom line has momenta $k + Q/2$ and $k' + Q/2$ and labels α and β . The wavy line connects the top and bottom lines, and the transition is labeled $\phi_\ell(k)$.

The final diagram shows the transition $T_{\ell n}(Q)$ between states α and β with momenta $p - Q/2$ and $k' - Q/2$ on the top line, and $p + Q/2$ and $k' + Q/2$ on the bottom line. The transition is represented by a green shaded box labeled $\Pi_{\ell n}(Q)$.

The final diagram shows the transition $T_{nm}(Q)$ between states α and β with momenta $p - Q/2$ and $k' - Q/2$ on the top line, and $p + Q/2$ and $k' + Q/2$ on the bottom line. The transition is represented by a yellow shaded box labeled $T_{nm}(Q)$.