

$$\Gamma^{(4)} =$$

The image displays the first four terms of the perturbative expansion for the four-point function  $\Gamma^{(4)}$ . The diagrams are arranged in two rows, separated by plus signs.

- Top Row:**
  - Diagram 1:** A tree-level exchange of a scalar particle (wavy line) between two pairs of fermions (solid lines with arrows). The vertices are labeled 6 and 5.
  - Diagram 2:** A tree-level exchange of a fermion (solid line) between two pairs of fermions. The vertices are labeled 6 and 5.
- Bottom Row:**
  - Diagram 3:** A loop-level diagram featuring a scalar loop (wavy line) and a fermion loop (solid line). The vertices are labeled 6, 5, 8, and 7.
  - Diagram 4:** A loop-level diagram featuring a fermion loop (solid line) and a scalar loop (wavy line). The vertices are labeled 6, 5, 8, and 7.

The expansion concludes with an ellipsis ( $\dots$ ), indicating higher-order terms.