

$$\langle 0 | \mathcal{S} | 0 \rangle = \exp \left( \text{diagram 1} + \text{diagram 2} + \text{diagram 3} + \dots \right)$$

The equation shows the vacuum expectation value of the S-matrix,  $\langle 0 | \mathcal{S} | 0 \rangle$ , expressed as the exponential of a sum of Feynman diagrams. The diagrams are enclosed in large parentheses.

- Diagram 1:** Two circles (bubbles) connected at a single vertex (black dot).
- Diagram 2:** Three circles connected in a vertical chain at two vertices (black dots).
- Diagram 3:** A complex diagram consisting of two vertices (black dots) connected by four arcs: two straight vertical lines and two curved lines forming the outer boundary.

The sum of these diagrams is followed by an ellipsis ( $\dots$ ), indicating that the series continues with higher-order terms.