

$$\Sigma^k =$$

The diagram represents the expansion of the self-energy  $\Sigma^k$  into three terms:

- First term:** A fermion line with incoming momentum  $k;1$  and outgoing momentum  $k;2$ . A wavy line loop, labeled  $\mathcal{U}_{1234}^{q=0}$ , is attached to the first fermion line.
- Second term:** A fermion line with incoming momentum  $k;1$  and outgoing momentum  $k;2$ . A wavy line loop, labeled  $\mathcal{U}_{1432}^q$ , is attached to the internal fermion line.
- Third term:** A fermion line with incoming momentum  $k;1$  and outgoing momentum  $k;2$ . A loop structure is attached to the internal fermion line, consisting of a circle labeled  $\mathcal{U}^{qkk'}$  and a rectangle labeled  $F_{dc23}^{qkk'}$  connected by two curved lines with arrows.