

$$(|0\rangle_c + |1\rangle_c) | \text{ellipsoid} \rangle \rightarrow$$

$$|0\rangle_c \left| \begin{array}{c} \text{Cylinder with two red paths labeled } a \text{ on the top surface.} \\ \text{A dashed blue loop labeled } 0 \oplus \tilde{0} \text{ on the bottom surface.} \end{array} \right\rangle + |1\rangle_c \left| \begin{array}{c} \text{Cylinder with two red paths labeled } a \text{ on the top surface.} \\ \text{A solid blue loop labeled } \Psi_m \text{ on the bottom surface.} \end{array} \right\rangle =$$

$$(|0\rangle_c + \tilde{S}(a, \Psi_m) |1\rangle_c) | \text{ellipsoid with two red dots} \rangle$$