

## (b) $|010\rangle$ $|001\rangle$ BS<sub>M</sub> BS<sub>N</sub>

## After first BS<sub>M</sub>:

$$|100\rangle \xrightarrow{\mathrm{BS}_M} \cos(\theta_M) |100\rangle + \sin(\theta_M) |010\rangle$$

goes through previous device