$$\boldsymbol{\sigma}\Psi_{\mathbf{n}} = \begin{bmatrix} \sigma_x & \sigma_y & \sigma_z \end{bmatrix} \begin{bmatrix} \cos\left(\dfrac{\theta}{2}\right) \\ e^{i\varphi}\sin\left(\dfrac{\theta}{2}\right) \end{bmatrix} = \cos\left(\frac{\theta}{2}\right)\sigma_x + e^{i\varphi}\sin\left(\frac{\theta}{2}\right)\sigma_y + ??? \cdot \sigma_z = ???$$