A change in the azimuth angle ($\Delta \beta$) will make the phase delay change between two orthogonal polarizations after passing through the $\delta$WP ($\delta$HWP). The phase delay can be written as

$$\phi_{RI} = \tan^{-1}\left[\frac{1}{2} \delta(\cos 2(\Delta \beta + \alpha) + \sin 2(\Delta \beta + \alpha))\right] - \tan^{-1}\left[\frac{1}{2} \delta(\cos 2(\Delta \beta + \alpha) - \sin 2(\Delta \beta + \alpha))\right],$$

(4)