1

$\omega(\omega)v\ vv_{\perp}v_{//}\ v_{//} = (v \cdot \omega)vv_{\perp} = v - v_{//}\ v_{//}v_{\perp}$

$$v_{\perp}^{'} = cos(\theta) * v_{\perp} + sin(\theta) * v \times \omega$$

$$\begin{aligned} v^{'} =& v_{//} + v_{\perp}^{'} \\ =& (v \cdot \omega)v + cos(\theta)v_{\perp} + sin(\theta)v \times \omega \\ =& (1 - cos(\theta))(v \cdot \omega)\omega + cos(\theta)v + sin(\theta)(\omega \times v) \\ =& (1 - cos\theta)\omega\omega^{T}v + cos\theta v + sin\theta\omega^{v} \end{aligned} \tag{1}$$

2