

Multiplicative Quaternion Extended Kalman Filtering for Nonspinning Guided
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$$q = \hat{q} \begin{pmatrix} 1 \\ \frac{\alpha}{2} \end{pmatrix}$$

1 Dynamics

$$\dot{\alpha} = -[\hat{\omega} \times]$$

2 Error State Formulation

$$\dot{x} = Fx$$

$$x = \alpha$$
$$F = -[\hat{\omega} \times]$$