

Module 9 - Yaw Velocity and Yaw Rate Gain

The yaw rate is the rate of rotation of a vehicle heading angle.

For steady state cornering this is:

$$\dot{\psi} = \frac{2\pi}{\text{Time to travel a circle}}$$

$$ut = 2\pi R$$

$$\dot{\psi} = \frac{2\pi}{\left(\frac{2\pi R}{u}\right)} = \frac{u}{R}$$

Yaw rate with respect to the steer angle is:

$$\dot{\psi} / \delta = \frac{u/R}{L/R + Ku^2/gR} = \frac{u/L}{1 + Ku^2/gL}$$

