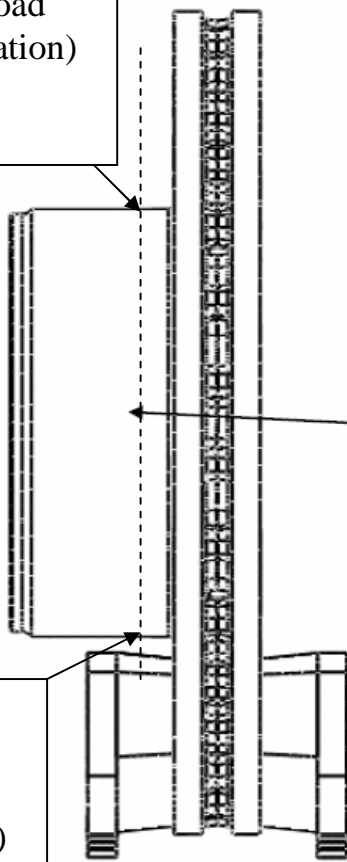$\tau < Tr/J$ (far from load application)

$\tau > Tr/J$ (close to load application)

trying to calculate ballpark value's for the shear in this section(the collar).

The shear is acting only in the section the width of the brake pad(apprx. 90 deg), not on the full circumference.