Kubo Number – Action/Angle Variables

Now, $Ku < 1 \Leftrightarrow \left(\tilde{\tau}_{ac}/\tau_0\right)^3$

$$\bar{M}^3 \left(\frac{\partial \omega}{\partial J}\right)^2 \Delta_J \tilde{\tau}_{ac}^3 < 1$$

$$\Delta_J \sim \left(\frac{\partial H^{(1)}}{\partial \theta}\right)^2 \tilde{\tau}_{ac}$$

$$\bar{M}^2 \left(\frac{\partial \omega}{\partial J}\right)^2 \left(\frac{\partial H^{(1)}}{\partial \theta}\right)^2 \tilde{\tau}_{ac}^2 \tilde{\tau}_{ac}^2 < 1$$

$$\frac{\left(\partial H^{(1)}/\partial \theta\right)^2 \tilde{\tau}_{ac}^2}{\Delta_J^2} \qquad \Delta_J^2 \bar{M}^2 \left(\frac{\partial \omega}{\partial J}\right)^2 \tilde{\tau}_{ac}^2 < 1$$

$\Downarrow$ Ku

$$\left(\frac{\partial}{\partial J}(m\omega)\,\Delta_J\right)^2 \tilde{\tau}_{ac}^2$$

$\Downarrow$ Doppler spread

$\hookrightarrow$ autocorrelation time

$\therefore$

$$\frac{\left(\partial H^{(1)}/\partial \theta\right)^2 \tilde{\tau}_{ac}^2}{\Delta_J^2} \quad (1) < 1$$

$Ku < 1$!