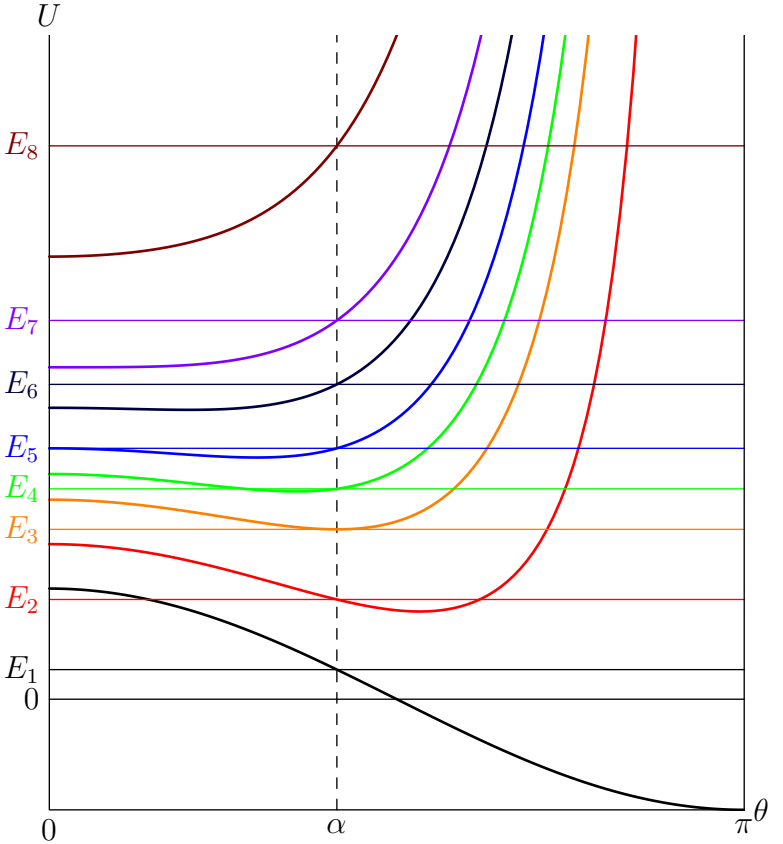

$$\frac{r\omega^2}{g} > 2\sec^2\frac{\alpha}{2}$$

$$\frac{r\omega^2}{g} = 2\sec^2\frac{\alpha}{2}$$

$$2 < \frac{r\omega^2}{g} < 2\sec^2\frac{\alpha}{2}$$

$$\frac{r\omega^2}{g} = 2$$

$$2\cos^2\frac{\alpha}{2} < \frac{r\omega^2}{g} < 2$$

$$\frac{r\omega^2}{g} = 2\cos^2\frac{\alpha}{2}$$

$$0 < \frac{r\omega^2}{g} < 2\cos^2\frac{\alpha}{2}$$

$$\frac{r\omega^2}{g} = 0$$