$$\mathrm{Re}^2\lambda + \mathrm{Im}^2\lambda \leq 1$$

$$\left(1 - \frac{4D\tau}{h^2}\sin^2\frac{\varphi}{2}\right)^2 + \frac{a^2\tau^2}{h^2}\sin^2\varphi \leq 1$$

$$\cancel{1} - \frac{8D\cancel{\tau}}{\cancel{h^2}}\sin^2\frac{\varphi}{2} + \frac{16D^2\tau^{\cancel{2}}}{h^{\cancel{4}2}}\sin^4\frac{\varphi}{2} + \frac{a^2\tau^{\cancel{2}}}{\cancel{h^2}}\sin^2\varphi \leq \cancel{1}$$

$$\sin^2\frac{\varphi}{2} \doteq m^2 \Rightarrow \sin^2\varphi = 4\sin^2\frac{\varphi}{2}\left(1 - \sin^2\frac{\varphi}{2}\right) = 4m^2(1-m^2)$$

$$\frac{16D^2\tau}{h^2}m^4 + 4a^2\tau m^2(1-m^2) - 8Dm^2 \leq 0$$

$$\frac{4D^2\tau}{h^2}m^2 + a^2\tau - a^2\tau m^2 \leq 2D$$

$$\left(\frac{4D^2\tau}{h^2} - a^2\tau\right)m^2 \leq 2D - a^2\tau$$

1) $\frac{4D^2\tau}{h^2} > a^2\tau \iff 4D^2 > a^2h^2$

$$m^2 \le \frac{2D - a^2\tau}{\frac{4D^2\tau}{h^2} - a^2\tau}$$

$$m^2 = \sin^2\frac{\varphi}{2} \le 1 \Rightarrow \frac{2D - a^2\tau}{\frac{4D^2\tau}{h^2} - a^2\tau} \ge 1$$

$$\cancel{2}\cancel{D} - \cancel{a^2\tau} \ge \frac{\overset{2}{\cancel{4}}D^{\cancel{2}}\tau}{h^2} - \cancel{a^2\tau}$$

$$\boxed{\frac{2D\tau}{h^2} \le 1}$$

2) $\frac{4D^2\tau}{h^2} < a^2\tau \iff 4D^2 < a^2h^2$

$$m^2 \le \frac{2D - a^2\tau}{a^2\tau - \frac{4D^2\tau}{h^2}}$$

$$m^2 = \sin^2\frac{\varphi}{2} \le 1 \Rightarrow \frac{2D - a^2\tau}{a^2\tau - \frac{4D^2\tau}{h^2}} \ge 1$$

$$\cancel{2}D - \cancel{2}a^2\tau + \frac{\overset{2}{\cancel{4}}D^2\tau}{h^2} \ge 0$$

т.к. $D^2 < \frac{a^2h^2}{4}$, $D < \frac{ah}{2}$, то $0 \le D - a^2\tau + \frac{2D^2\tau}{h^2} <$

$< \frac{ah}{2} - a^2\tau + \frac{a^2\cancel{h^2}\tau}{2\cancel{h^2}}$

$$\frac{a^{\cancel{2}}\tau}{\cancel{2}} < \frac{\cancel{a}h}{\cancel{2}} \Rightarrow \boxed{\frac{a\tau}{h} < 1}$$

3) $\frac{4D^2\cancel{\tau}}{h^2} = a^2\cancel{\tau} \iff D = \frac{ah}{2}$

$$0 \le 2D - a^2\tau \Rightarrow \cancel{a}h \ge a^{\cancel{2}}\tau \Rightarrow \boxed{\frac{a\tau}{h} \le 1}$$

Итого, условие устойчивости:

$$\left[\begin{array}{l} \begin{cases} \dfrac{2D\tau}{h^2} \le 1 \\ 4D^2 > a^2h^2 \end{cases} \\ \\ \begin{cases} \dfrac{a\tau}{h} \le 1 \\ 4D^2 \le a^2h^2 \end{cases} \end{array}\right.$$