Universidad Nacional de San Martín
Alumna: Coto, María Montserrat
TS02-APS

$$|H(jw)| = \frac{w\frac{w_0}{Q}}{\sqrt{({w_0}^2 - w^2)^2 + (w\frac{w_0}{Q})^2}}$$

$$\frac{w\frac{w_0}{Q}}{\sqrt{({w_0}^2 - w^2)^2 + (w\frac{w_0}{Q})^2}} = \frac{\sqrt{2}}{2}$$

$$\left(\frac{w\frac{w_0}{Q}}{\sqrt{({w_0}^2 - w^2)^2 + (w\frac{w_0}{Q})^2}}\right)^2 = \frac{1}{2}$$

$$\frac{(w\frac{w_0}{Q})^2}{({w_0}^2 - w^2)^2 + (w\frac{w_0}{Q})^2} = \frac{1}{2}$$

$${w_0}^4 - (2{w_0}^2 + (\frac{w_0}{Q})^2)w^2 + w^4 = 0$$

Hago un cambio de variable $x = w^2$

$w_{1,2} = \frac{w_0(\sqrt{1+Q^2} \pm 1)}{2Q}$ Y con $w_0 = 2\pi * 1\text{Hz}$ y $\frac{w_0}{Q} = \frac{R}{L} \rightarrow Q = L$

$$\boldsymbol{Ancho\ de\ banda = w_2 - w_1 = (\frac{(\sqrt{1+L^2} - 1)}{2L}) - (-\frac{(\sqrt{1+L^2} + 1)}{2L})}$$