$$\omega^2\begin{bmatrix} a_1 \\ a_2 \end{bmatrix}=\begin{bmatrix} \omega_0^2-i\omega_0\delta & \omega_0\gamma \\ \omega_0\gamma^* & \omega_0^2-i\omega_0\delta \end{bmatrix}\begin{bmatrix} a_1 \\ a_2 \end{bmatrix}+\begin{bmatrix} \Omega^2(\omega,T) \\ 0 \end{bmatrix}$$

In the absence of loss and at zero $T$ the eigenvalues are,

$$\omega^2=\omega_0^2-i\omega_0\delta\pm\omega_0|\gamma|$$

or if $|\gamma|<<\omega_0$,

$$\omega\approx\omega_0-i\delta\pm|\gamma|$$

and the eigenvectors,

$$\frac{1}{\sqrt{2}}\begin{bmatrix} +1 \\ +|\gamma|/\gamma \end{bmatrix},\quad \omega^2=\omega_0^2-i\omega_0\delta+\omega_0|\gamma|$$

$$\frac{1}{\sqrt{2}}\begin{bmatrix} +1 \\ -|\gamma|/\gamma \end{bmatrix},\quad \omega^2=\omega_0^2-i\omega_0\delta-\omega_0|\gamma|$$

The splitting of the eigenvectors can be obtained from the internal reflectivity of either of the surfaces – they diverge at the eigenvalue frequency.

The new Green's function is,

$$G(\omega)=\frac{1}{2}\begin{bmatrix} +1 \\ +|\gamma|/\gamma \end{bmatrix}\begin{bmatrix} 1, & +|\gamma|/\gamma^* \end{bmatrix}\frac{1}{\omega^2-\omega_0^2+i\omega_0\delta-\omega_0|\gamma|}$$

$$+\frac{1}{2}\begin{bmatrix} +1 \\ -|\gamma|/\gamma \end{bmatrix}\begin{bmatrix} 1, & -|\gamma|/\gamma^* \end{bmatrix}\frac{1}{\omega^2-\omega_0^2+i\omega_0\delta+\omega_0|\gamma|}$$

and hence the response to $\Omega(\omega,T)$,

$$\begin{bmatrix} a_1 \\ a_2 \end{bmatrix}=\frac{\Omega^2(\omega,T)}{2}\left\{\begin{bmatrix} +1 \\ +|\gamma|/\gamma \end{bmatrix}\frac{1}{\omega^2-\omega_0^2+i\omega_0\delta-\omega_0|\gamma|}+\begin{bmatrix} +1 \\ -|\gamma|/\gamma \end{bmatrix}\frac{1}{\omega^2-\omega_0^2+i\omega_0\delta+\omega_0|\gamma|}\right\}$$