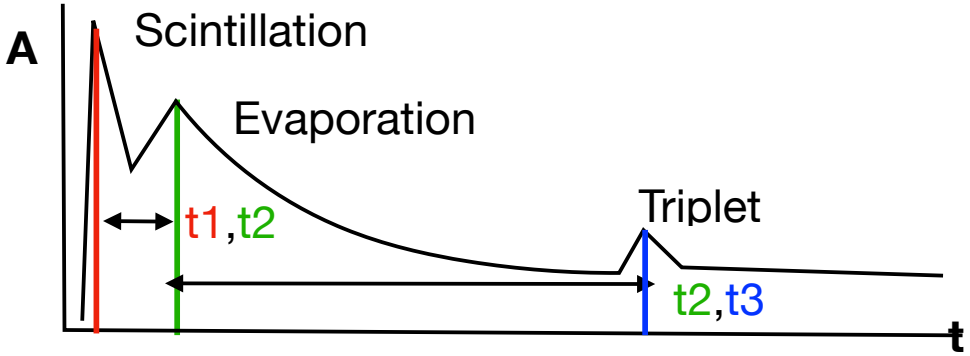
OF_1x3x3:

$$\chi^2_{2-pulse}(A_1, A_2, A_3, t_1, t_2, t_3) = \int \frac{df}{J(f)} \left| \tilde{V}(f) - A_1 e^{-iwt_1} \tilde{S}_1(f) - A_2 e^{-iwt_2} \tilde{S}_2(f) - A_3 e^{-iwt_3} \tilde{S}_3(f) \right|^2$$

$$\frac{\partial \chi^2_{2-pulse}}{\partial A_1} = 0$$
$$\frac{\partial \chi^2_{2-pulse}}{\partial A_2} = 0$$
$$\frac{\partial \chi^2_{2-pulse}}{\partial A_3} = 0$$

$$\begin{pmatrix} A_1 \\ A_2 \\ A_3 \end{pmatrix} \begin{pmatrix} \frac{S_1.S_1}{J} & \frac{Ve^{i\omega.(t_1-t_2)}\, S_1.S_2}{J} & \frac{Ve^{i\omega.(t_1-t_3)}\, S_1.S_3}{J} \\ \frac{Ve^{-i\omega.(t_1-t_2)}\, S_1.S_2}{J} & \frac{S_2.S_2}{J} & \frac{Ve^{i\omega.(t_2-t_3)}\, S_2.S_3}{J} \\ \frac{Ve^{-i\omega.(t_1-t_3)}\, S_1.S_3}{J} & \frac{Ve^{-i\omega.(t_2-t_3)}\, S_2.S_3}{J} & \frac{S_3.S_3}{J} \end{pmatrix} = \begin{pmatrix} \frac{S_1.V.e^{i\omega t_1}}{J} \\ \frac{S_2.V.e^{i\omega.t_2}}{J} \\ \frac{S_3.V.e^{i\omega.t_3}}{J} \end{pmatrix}$$

One can use the same ifft trick and construct P^{-1} matrix and solve for A_1, A_2, A_3 for a time-combination of t_1, t_2 and t_3



I fit the iron events with two template:
Get the exact-time stamp of evaporation and scintillation to narrow down my search fit window for triplet

Than I re-run these events with three template and search for the triplet?

https://github.com/spice-herald/QETpy/tree/feature/OF_1x3/qetpy/core