

$$\begin{aligned}
-\frac{dN}{dt}(t) &= N_0(\Gamma_{\text{ortho}} + \Gamma_{\text{pick-off}})\exp\left(-\int^t dt(\Gamma_{\text{ortho}} + \Gamma_{\text{pick-off}}(t))\right) \\
&= N_0(\Gamma_{\text{ortho}} + \Gamma_{\text{pick-off}})\exp\left(-\frac{1}{t_{\text{ortho}}}\int^t dt(1 + f(t))\right)
\end{aligned}$$