$$\frac{dF^{\uparrow}_{dif,\nu_i}}{d\tau^*_{\nu_i}} = \gamma_1 F^{\uparrow}_{dif,\nu_i} - \gamma_2 F^{\downarrow}_{dif,\nu_i} - \gamma_3 \tilde{\omega}^*_{\nu_i} S_{\nu_i} e^{-\tau^*_{\nu_i}/\mu_0},$$

$$\frac{dF^{\downarrow}_{dif,\nu_i}}{d\tau^*_{\nu_i}} = \gamma_2 F^{\uparrow}_{dif,\nu_i} - \gamma_1 F^{\downarrow}_{dif,\nu_i} + (1-\gamma_3) \tilde{\omega}^*_{\nu_i} S_{\nu_i} e^{-\tau^*_{\nu_i}/\mu_0}.$$