

$$L(\theta_1, \theta_2, \varphi, m, I_{cat}) = L_{sig}(\theta_1, \theta_2, \varphi, m, I_{cat})$$

$$L_{sig}(t, \theta_1, \theta_2, \varphi, m, I_{cat}) = \sum_{n=0}^6 K_n(I_{cat}) f_n(\theta_1, \theta_2, \varphi)$$

$$K_1(I_{cat}) = \frac{1}{2} A_0^2 [(1 + \cos \phi_s)/\Gamma_L + (1 - \cos \phi_s)/\Gamma_H + 2I_{cat} \frac{\Delta m_s}{\Delta m_s^2 + \Gamma_s^2} \sin \phi_s]$$

$$K_2(I_{cat}) = \frac{1}{2} A_{\parallel}^2 [(1 + \cos \phi_s)/\Gamma_L + (1 - \cos \phi_s)/\Gamma_H + 2I_{cat} \frac{\Delta m_s}{\Delta m_s^2 + \Gamma_s^2} \sin \phi_s]$$

$$K_3(I_{cat}) = \frac{1}{2} A_{\perp}^2 [(1 - \cos \phi_s)/\Gamma_L + (1 + \cos \phi_s)/\Gamma_H - 2I_{cat} \frac{\Delta m_s}{\Delta m_s^2 + \Gamma_s^2} \sin \phi_s]$$

$$K_4(I_{cat}) = |A_{\parallel}| |A_{\perp}| [I_{cat} \{ \sin \delta_1 \frac{\Gamma_s}{\Delta m_s^2 + \Gamma_s^2} - \cos \delta_1 \frac{\Delta m_s}{\Delta m_s^2 + \Gamma_s^2} \cos \phi_s \} \\ - \frac{1}{2} (1/\Gamma_H - 1/\Gamma_L) \cos \delta_1 \sin \phi_s]$$

$$K_5(I_{cat}) = \frac{1}{2} |A_0| |A_{\parallel}| \cos(\delta_1 - \delta_2) [(1 + \cos \phi_s)/\Gamma_L + (1 - \cos \phi_s)/\Gamma_H \\ + 2I_{cat} \frac{\Delta m_s}{\Delta m_s^2 + \Gamma_s^2} \sin \phi_s]$$

$$K_6(I_{cat}) = |A_0| |A_{\perp}| [I_{cat} \{ \sin \delta_2 \frac{\Gamma_s}{\Delta m_s^2 + \Gamma_s^2} - \cos \delta_2 \frac{\Delta m_s}{\Delta m_s^2 + \Gamma_s^2} \cos \phi_s \} \\ - \frac{1}{2} (1/\Gamma_H - 1/\Gamma_L) \cos \delta_2 \sin \phi_s]$$

$$\Gamma_s = \frac{\Gamma_L + \Gamma_H}{2}$$

$$f_1(\theta_1, \theta_2, \varphi) = 4 \cos^2 \theta_1 \cos^2 \theta_2$$

$$f_2(\theta_1, \theta_2, \varphi) = \sin^2 \theta_1 \sin^2 \theta_2 (1 + \cos 2\varphi)$$

$$f_3(\theta_1, \theta_2, \varphi) = \sin^2 \theta_1 \sin^2 \theta_2 (1 - \cos 2\varphi)$$

$$f_4(\theta_1, \theta_2, \varphi) = -2 \sin^2 \theta_1 \sin^2 \theta_2 \sin 2\varphi$$

$$f_5(\theta_1, \theta_2, \varphi) = \sqrt{2} \sin 2\theta_1 \sin 2\theta_2 \cos \varphi$$

$$f_6(\theta_1, \theta_2, \varphi) = -\sqrt{2} \sin 2\theta_1 \sin 2\theta_2 \sin \varphi$$

$$A_0^2 = 0.736$$

$$A_{\parallel}^2 = 0.132$$

$$A_{\perp}^2 = 0.132$$

$$\Gamma_L = 0.72 \text{ ps}^{-1}$$

$$\Gamma_H = 0.65 \text{ ps}^{-1}$$

$$\Delta m_s = 20.0 \text{ ps}^{-1}$$

$$\delta_1 = \pi$$

$$\delta_2 = \pi + 0.5$$

$$\phi_s = 0.04$$