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1 Monochromatic Sources

$$\Gamma_{ij} = \frac{3}{4} S_n(f_0)^{-1} \sum_{\alpha=\mathrm{I,II}} \int_{-\infty}^{\infty} \left[\partial_i A_\alpha(t) \partial_j A_\alpha(t) + A_\alpha^2(t) \partial_i \chi_\alpha(t) \partial_j \chi_\alpha(t) \right] \, \mathrm{d}t.$$

$$A_\alpha(t) = \left[A_+^2 F_{+,\alpha}^2(t) + A_\times^2 F_{\times,\alpha}^2(t) \right]^{1/2}.$$

$$\chi_\alpha(t) = 2\pi f_0 t + \varphi_0 + \varphi_{\mathrm{p},\alpha}(t) + \varphi_{\mathrm{D}}(t).$$

$$\varphi_{\mathrm{p},\alpha}(t) = \arctan\left(-\frac{A_\times F_{\times,\alpha}(t)}{A_+ F_{+,\alpha}(t)} \right).$$

$$\varphi_{\mathrm{D}}(t) = 2\pi f_0 c^{-1} R \sin\bar\theta_{\mathrm{S}} \cos\left[\bar\phi(t) - \bar\phi_{\mathrm{S}} \right].$$

$$A_+ = 2e^{\ln\mathcal{A}} \left\{ 1 + \left[\cos\bar\theta_L \cos\bar\theta_{\mathrm{S}} + \sin\bar\theta_L \sin\bar\theta_{\mathrm{S}} \cos(\bar\phi_L - \bar\phi_{\mathrm{S}}) \right]^2 \right\}.$$

$$A_\times = -4e^{\ln\mathcal{A}} \left[\cos\bar\theta_L \cos\bar\theta_{\mathrm{S}} + \sin\bar\theta_L \sin\bar\theta_{\mathrm{S}} \cos(\bar\phi_L - \bar\phi_{\mathrm{S}}) \right].$$

$$F_{+,\mathrm{I}}(\theta_{\mathrm{S}}, \phi_{\mathrm{S}}, \psi_{\mathrm{S}}) = \frac{1}{2}(1 + \cos^2\theta_{\mathrm{S}}) \cos 2\phi_{\mathrm{S}} \cos 2\psi_{\mathrm{S}} - \cos\theta_{\mathrm{S}} \sin 2\phi_{\mathrm{S}} \sin 2\psi_{\mathrm{S}}.$$

$$F_{\times,\mathrm{I}}(\theta_{\mathrm{S}}, \phi_{\mathrm{S}}, \psi_{\mathrm{S}}) = \frac{1}{2}(1 + \cos^2\theta_{\mathrm{S}}) \cos 2\phi_{\mathrm{S}} \sin 2\psi_{\mathrm{S}} - \cos\theta_{\mathrm{S}} \sin 2\phi_{\mathrm{S}} \cos 2\psi_{\mathrm{S}}.$$

$$F_{+,\mathrm{II}}(\theta_{\mathrm{S}}, \phi_{\mathrm{S}}, \psi_{\mathrm{S}}) = \frac{1}{2}(1 + \cos^2\theta_{\mathrm{S}}) \sin 2\phi_{\mathrm{S}} \cos 2\psi_{\mathrm{S}} + \cos\theta_{\mathrm{S}} \cos 2\phi_{\mathrm{S}} \sin 2\psi_{\mathrm{S}}.$$

$$F_{\times,\mathrm{II}}(\theta_{\mathrm{S}}, \phi_{\mathrm{S}}, \psi_{\mathrm{S}}) = \frac{1}{2}(1 + \cos^2\theta_{\mathrm{S}}) \sin 2\phi_{\mathrm{S}} \sin 2\psi_{\mathrm{S}} + \cos\theta_{\mathrm{S}} \cos 2\phi_{\mathrm{S}} \cos 2\psi_{\mathrm{S}}.$$

$$\cos\theta_{\mathrm{S}} = \frac{1}{2}\cos\bar\theta_{\mathrm{S}} - \frac{\sqrt{3}}{2}\sin\bar\theta_{\mathrm{S}} \cos\left[\bar\phi(t) - \bar\phi_{\mathrm{S}} \right].$$

$$\phi_{\mathrm{S}} = 2\pi t/T + \alpha_0 + \arctan\left\{ \frac{\sqrt{3}\cos\bar\theta_{\mathrm{S}} + \sin\bar\theta_{\mathrm{S}} \cos\left[\bar\phi(t) - \bar\phi_{\mathrm{S}} \right]}{2\sin\bar\theta_{\mathrm{S}} \sin\left[\bar\phi(t) - \bar\phi_{\mathrm{S}} \right]} \right\}.$$

$$\psi_{\mathrm{S}} = \arctan\left\{ \frac{\frac{1}{2}\cos\bar\theta_L - \frac{\sqrt{3}}{2}\sin\bar\theta_L \cos\left[\bar\phi(t) - \bar\phi_L \right] - \left[\cos\bar\theta_L \cos\bar\theta_{\mathrm{S}} + \sin\bar\theta_L \sin\bar\theta_{\mathrm{S}} \cos(\bar\phi_L - \bar\phi_{\mathrm{S}}) \right] \cos\theta_{\mathrm{S}}}{\frac{1}{2}\sin\bar\theta_L \sin\bar\theta_{\mathrm{S}} \sin(\bar\phi_L - \bar\phi_{\mathrm{S}}) - \frac{\sqrt{3}}{2}(\cos\bar\theta_L \sin\bar\theta_{\mathrm{S}} \sin\bar\phi_{\mathrm{S}} - \cos\bar\theta_{\mathrm{S}} \sin\bar\theta_L \sin\bar\phi_L) \cos\bar\phi(t) - \frac{\sqrt{3}}{2}(\cos\bar\theta_{\mathrm{S}} \sin\bar\theta_L \cos\bar\phi_L - \cos\bar\theta_L \sin\bar\theta_{\mathrm{S}} \cos\bar\phi_{\mathrm{S}}) \sin\bar\phi(t)} \right\}$$

$$\bar\phi(t) = \bar\phi_0 + 2\pi t/T.$$

$$\alpha_0 = 0, \quad \bar\phi_0 = 0.$$

$$\Gamma_{1j} = \frac{3}{4} S_n(f_0)^{-1} \sum_{\alpha=\mathrm{I,II}} \int_{-\infty}^{\infty} A_\alpha(t) \partial_j A_\alpha(t) \, \mathrm{d}t.$$

$$\Gamma_{2j} = \frac{3}{4} S_n(f_0)^{-1} \sum_{\alpha=\mathrm{I,II}} \int_{-\infty}^{\infty} A_\alpha^2(t) \partial_j \chi_\alpha(t) \, \mathrm{d}t.$$

$$\Gamma_{3j} = \frac{3}{4} S_n(f_0)^{-1} \sum_{\alpha=\mathrm{I,II}} \int_{-\infty}^{\infty} A_\alpha^2(t) 2\pi t \partial_j \chi_\alpha(t) \, \mathrm{d}t.$$

$$\ln\mathcal{A} := 0, \quad \varphi_0 := 0.$$

$$\frac{\Gamma_{ij}}{\Gamma_{ij,\ln\mathcal{A}=0}} = \frac{(S/N)}{(S/N)_{\ln\mathcal{A}=0}} = \frac{10}{(S/N)_{\ln\mathcal{A}=0}}.$$

$$(S/N)^2 = 2S_n(f_0)^{-1} \sum_{\alpha=\mathrm{I,II}} \int_{-\infty}^{\infty} \left[\int_{-\infty}^{\infty} e^{2\pi i f t_1} h_\alpha(t) \, \mathrm{d}t_1 \right] \left[\int_{-\infty}^{\infty} e^{-2\pi i f t_2} h_\alpha(t) \, \mathrm{d}t_2 \right] \, \mathrm{d}f.$$

$$(S/N)^2 = 2S_n(f_0)^{-1} \sum_{\alpha=\mathrm{I,II}} \int_{-\infty}^{\infty} \tilde h_\alpha(f) \tilde h_\alpha^*(f) \, \mathrm{d}f.$$

$$(S/N)^2 = 2S_n(f_0)^{-1} \sum_{\alpha=\mathrm{I,II}} \int_{-\infty}^{\infty} h_\alpha^2(t) \, \mathrm{d}t.$$