The G.R.B. code

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1 Equations

ODE system to be integrated in time:

$$\dot{\Omega} = \frac{N_{\text{dip}} + N_{\text{acc}}}{I} \tag{1}$$

$$\dot{t}' = \mathcal{D} \tag{2}$$

$$\dot{\Gamma} = \frac{(L_{\text{sd}} + L_{\text{ra}} - L_{\text{e}}) - \frac{\Gamma}{\mathcal{D}}(\xi L_{\text{sd}} + L_{\text{ra}} - L_{\text{e}}) + \Gamma \mathcal{D} \frac{E'_{\text{int}}}{3V'}(4\pi\kappa^2\beta c)}{M_{\text{ej}}c^2 + E'_{\text{int}}} \tag{3}$$

$$\dot{E}'_{\text{int}} = \mathcal{D}\left[\frac{1}{\mathcal{D}^2}(\xi L_{\text{sd}} + L_{\text{ra}} - L_{\text{e}}) - \frac{E'_{\text{int}}}{3V'}(4\pi\kappa^2\beta c)\right] \tag{4}$$

$$\dot{V}' = 4\pi\kappa^2\beta c \mathcal{D} \tag{5}$$

$$\dot{R}' = \frac{\beta c}{1 - \beta} \tag{6}$$

Various functions:

$$\beta(\Gamma) = (1 - \Gamma^{-2})^{-1/2} \tag{7}$$

$$\mathcal{D} = [\Gamma(1 - \beta\cos\theta)]^{-1} \tag{8}$$