

$$ds^2 = -dt^2 + a^2(t) [(d\chi)^2 + \sin^2\chi (d\theta)^2 + \sin^2\theta (d\phi)^2]$$

$$\Gamma_{\chi\chi}^t = a\dot{a}$$

$$\Gamma_{\chi t}^{\chi} = \Gamma_{t\chi}^{\chi} = \frac{\dot{a}}{a}$$

$$\Gamma_{\theta\theta}^t = a\dot{a}\sin^2\chi$$

$$\Gamma_{t\theta}^{\theta} = \Gamma_{\theta t}^{\theta} = \frac{\dot{a}}{a}$$

$$\Gamma_{\phi\phi}^t = a\dot{a}\sin^2\chi\sin^2\theta$$

$$\Gamma_{\phi t}^{\phi} = \Gamma_{t\phi}^{\phi} = \frac{\dot{a}}{a}$$

$$\Gamma_{\theta\theta}^{\chi} = -\sin\chi\cos\chi$$

$$\Gamma_{\theta\chi}^{\theta} = \Gamma_{\chi\theta}^{\theta} = \cot\chi$$

$$\Gamma_{\phi\phi}^{\chi} = -\sin\chi\cos\chi\sin^2\theta$$

$$\Gamma_{\phi\chi}^{\phi} = \Gamma_{\chi\phi}^{\phi} = \cot\chi$$

$$\Gamma_{\phi\phi}^{\theta} = -\sin\theta\cos\theta$$

$$\Gamma_{\phi\theta}^{\phi} = \Gamma_{\theta\phi}^{\phi} = \cot\theta$$

$$R_{\chi\chi t}^t = -a\ddot{a} \quad R_{\theta\theta t}^t = -a\ddot{a}\sin^2\chi$$

$$R_{\phi\phi t}^t = -a\ddot{a}\sin^2\chi\sin^2\theta \quad R_{\theta\theta\chi}^{\chi} = -\sin^2\chi$$

$$R_{\phi\phi\chi}^{\chi} = -\sin^2\chi\sin^2\theta(1+(\dot{a})^2)$$

$$R_{\phi\phi\theta}^{\theta} = \sin^2\theta(1+(\dot{a})^2\sin^2\chi)$$

See also:

[http://universeinproblems.com/index.php/Friedman-Lemaitre-Robertson-Walker\\_\(FLRW\)\\_metric#Problem\\_20:\\_Christoffel\\_symbols\\_for\\_FLRW\\_metric](http://universeinproblems.com/index.php/Friedman-Lemaitre-Robertson-Walker_(FLRW)_metric#Problem_20:_Christoffel_symbols_for_FLRW_metric)