Schwarzschild Metric in spherical coordinates with a variable spherically symmetric matter density:

$\boxed{x^\mu}$

$x^0 = t.$
$x^1 = r.$
$x^2 = \theta.$
$x^3 = \phi.$

$\boxed{g_{\mu\nu}}$

$g_{00} = 1 - \frac{8}{3} r^2 \pi \rho(r,t).$
$g_{01} = 0.$
$g_{02} = 0.$
$g_{03} = 0.$
$g_{10} = 0.$
$g_{11} = 3 \frac{1}{-3 + 8 r^2 \pi \rho(r,t)}.$
$g_{12} = 0.$
$g_{13} = 0.$
$g_{20} = 0.$
$g_{21} = 0.$
$g_{22} = -r^2.$
$g_{23} = 0.$
$g_{30} = 0.$
$g_{31} = 0.$
$g_{32} = 0.$
$g_{33} = -\sin(\theta)^2 r^2.$

$\boxed{\sqrt{} = \sqrt{-\det(g_{\mu\nu})}}$

$\sqrt{} = \sqrt{\sin(\theta)^2 r^4}.$

$\boxed{g^{\mu\nu}}$

$g^{00} = -3 \frac{1}{-3 + 8 r^2 \pi \rho(r,t)}.$
$g^{01} = 0.$
$g^{02} = 0.$
$g^{03} = 0.$
$g^{10} = 0.$
$g^{11} = -1 + \frac{8}{3} r^2 \pi \rho(r,t).$
$g^{12} = 0.$
$g^{13} = 0.$
$g^{20} = 0.$
$g^{21} = 0.$
$g^{22} = -\frac{1}{r^2}.$
$g^{23} = 0.$
$g^{30} = 0.$
$g^{31} = 0.$
$g^{32} = 0.$
$g^{33} = -\frac{1}{\sin(\theta)^2 r^2}.$

$\boxed{\Gamma^\sigma_{\mu\nu}}$

$\Gamma^0_{00} = 4 \frac{\rho'(r,t) r^2 \pi}{-3 + 8 r^2 \pi \rho(r,t)}.$
$\Gamma^0_{01} = 4 \frac{2 r \pi \rho(r,t) + \dot{\rho}(r,t) r^2 \pi}{-3 + 8 r^2 \pi \rho(r,t)}.$
$\Gamma^0_{02} = 0.$
$\Gamma^0_{03} = 0.$
$\Gamma^0_{10} = 4 \frac{2 r \pi \rho(r,t) + \dot{\rho}(r,t) r^2 \pi}{-3 + 8 r^2 \pi \rho(r,t)}.$
$\Gamma^0_{11} = -36 \frac{\rho'(r,t) r^2 \pi}{(-3 + 8 r^2 \pi \rho(r,t))^2}.$
$\Gamma^0_{12} = 0.$
$\Gamma^0_{13} = 0.$
$\Gamma^0_{20} = 0.$
$\Gamma^0_{21} = 0.$
$\Gamma^0_{22} = 0.$
$\Gamma^0_{23} = 0.$
$\Gamma^0_{30} = 0.$
$\Gamma^0_{31} = 0.$
$\Gamma^0_{32} = 0.$
$\Gamma^0_{33} = 0.$

$\Gamma^1_{00} = \frac{4}{9} (-3 + 8 r^2 \pi \rho(r,t)) (2 r \pi \rho(r,t) + \dot{\rho}(r,t) r^2 \pi).$
$\Gamma^1_{01} = -4 \frac{\rho'(r,t) r^2 \pi}{-3 + 8 r^2 \pi \rho(r,t)}.$
$\Gamma^1_{02} = 0.$
$\Gamma^1_{03} = 0.$
$\Gamma^1_{10} = -4 \frac{\rho'(r,t) r^2 \pi}{-3 + 8 r^2 \pi \rho(r,t)}.$
$\Gamma^1_{11} = -4 \frac{2 r \pi \rho(r,t) + \dot{\rho}(r,t) r^2 \pi}{-3 + 8 r^2 \pi \rho(r,t)}.$
$\Gamma^1_{12} = 0.$
$\Gamma^1_{13} = 0.$
$\Gamma^1_{20} = 0.$
$\Gamma^1_{21} = 0.$
$\Gamma^1_{22} = \frac{1}{3} r (-3 + 8 r^2 \pi \rho(r,t)).$
$\Gamma^1_{23} = 0.$
$\Gamma^1_{30} = 0.$
$\Gamma^1_{31} = 0.$
$\Gamma^1_{32} = 0.$
$\Gamma^1_{33} = \frac{1}{3} \sin(\theta)^2 r (-3 + 8 r^2 \pi \rho(r,t)).$

$\Gamma^2_{00} = 0.$

$\Gamma^2_{01} = 0.$

$\Gamma^2_{02} = 0.$

$\Gamma^2_{03} = 0.$

$\Gamma^2_{10} = 0.$

$\Gamma^2_{11} = 0.$

$\Gamma^2_{12} = \frac{1}{r}.$

$\Gamma^2_{13} = 0.$

$\Gamma^2_{20} = 0.$

$\Gamma^2_{21} = \frac{1}{r}.$

$\Gamma^2_{22} = 0.$

$\Gamma^2_{23} = 0.$

$\Gamma^2_{30} = 0.$

$\Gamma^2_{31} = 0.$

$\Gamma^2_{32} = 0.$

$\Gamma^2_{33} = -\cos(\theta)\sin(\theta).$

$\Gamma^3_{00} = 0.$

$\Gamma^3_{01} = 0.$

$\Gamma^3_{02} = 0.$

$\Gamma^3_{03} = 0.$

$\Gamma^3_{10} = 0.$

$\Gamma^3_{11} = 0.$

$\Gamma^3_{12} = 0.$

$\Gamma^3_{13} = \frac{1}{r}.$

$\Gamma^3_{20} = 0.$

$\Gamma^3_{21} = 0.$

$\Gamma^3_{22} = 0.$

$\Gamma^3_{23} = \frac{\cos(\theta)}{\sin(\theta)}.$

$\Gamma^3_{30} = 0.$

$\Gamma^3_{31} = \frac{1}{r}.$

$\Gamma^3_{32} = \frac{\cos(\theta)}{\sin(\theta)}.$

$\Gamma^3_{33} = 0.$

$\boxed{\ddot{x}^\mu = \left(\Gamma^0_{\sigma\rho}\dot{x}^\mu - \Gamma^\mu_{\sigma\rho}\right)\dot{x}^\sigma\dot{x}^\rho}$

$\ddot{x}^0 = 0.$

$\ddot{x}^1 = \frac{1}{9}\frac{972\rho'(r,t)r^2\pi\dot{x} - 648r\pi\rho(r,t) - 10368r^3\pi^2\dot{z}^2\rho(r,t)^2 + 6912\rho'(r,t)r^6\pi^3\dot{x}\rho(r,t)^2 - 27648r^5\pi^3\rho(r,t)^3 - 243\dot{z}^2\sin(\theta)^2r + 18432\dot{z}^2\sin(\theta)^2r^7\pi^3\rho(r,t)^3 + 24576\dot{\rho}(r,t)r^8\pi^4\rho(r,t)^3 - 16384\dot{\rho}(r,t)r^{10}\pi^5\rho(r,t)^4 + 6912\dot{\rho}(r,t)r^6\pi^3\dot{x}^2\rho(r,t)^2 - 324\rho'(r,t)r^2\pi\dot{x}^2 + 1944r\pi\dot{x}^2\rho(r,t) + 3456\dot{\rho}(r,t)r^4\pi^2\rho(r,t) - 32768r^9\pi^5\rho(r,t)^5 - 5184\dot{\rho}(r,t)r^4\pi^2\dot{x}^2\rho(r,t) + 49152r^7\pi^4\rho(r,t)^4 - 324\dot{\rho}(r,t)r^2\pi + 972\dot{\rho}(r,t)r^2\pi\dot{x}^2 - 13824\dot{\rho}(r,t)r^6\pi^3\rho(r,t)^2 + 2592\dot{z}^2\sin(\theta)^2r^3\pi\rho(r,t) + 13824r^5\pi^3\dot{x}^2\rho(r,t)^3 + 6912r^3\pi^2\rho(r,t)^2 - 12288\dot{z}^2\sin(\theta)^2r^9\pi^4\rho(r,t)^4 - 10368\dot{z}^2\sin(\theta)^2r^5\pi^2}{(-3+8r^2\pi\rho(r,t))^3}$

$\ddot{x}^2 = \cos(\theta)\dot{z}^2\sin(\theta).$

$\ddot{x}^3 = 2\frac{128\dot{z}\rho'(r,t)r^7\pi^3\rho(r,t)^2 + 18\dot{z}\rho'(r,t)r^3\pi + 256\dot{\rho}(r,t)\dot{z}r^7\pi^3\dot{x}\rho(r,t)^2 + 36\dot{\rho}(r,t)\dot{z}r^3\pi\dot{x} - 144\dot{z}r^2\pi\dot{x}\rho(r,t) + 192\dot{z}r^4\pi^2\dot{x}\rho(r,t)^2 - 96\dot{z}\rho'(r,t)r^5\pi^2\rho(r,t) - 192\dot{\rho}(r,t)\dot{z}r^5\pi^2\dot{x}\rho(r,t) - 18\dot{z}\rho'(r,t)r^3\pi\dot{x}^2 + 27\dot{z}\dot{x}}{r(-3+8r^2\pi\rho(r,t))^3}.$

$\boxed{R_{\mu\nu}}$

$R_{00} = \frac{4}{9}\frac{3456\dot{\rho}(r,t)r^5\pi^3\rho(r,t)^2 - 72\rho''(r,t)r^4\pi^2\rho(r,t) + 144\rho'(r,t)^2r^4\pi^2 - 1296r^2\pi^2\rho(r,t)^2 + 162\dot{\rho}(r,t)r\pi + 3456r^4\pi^3\rho(r,t)^3 - 3072\dot{\rho}(r,t)r^7\pi^4\rho(r,t)^3 + 576r^6\ddot{\rho}(r,t)\pi^3\rho(r,t)^2 - 1296\dot{\rho}(r,t)r^3\pi^2\rho(r,t) + 27\rho''(r,t)r^2\pi + 162\pi\rho(r,t) - 216r^4\ddot{\rho}(r,t)\pi^2\rho(r,t) + 27r^2\ddot{\rho}(r,t)\pi - 3072r^6\pi^4\rho(r,t)^4 - 512r^8\ddot{\rho}(r,t)\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^2}.$

$R_{01} = 8\frac{\rho'(r,t)r\pi}{-3+8r^2\pi\rho(r,t)}.$

$R_{02} = 0.$

$R_{03} = 0.$

$R_{10} = 8\frac{\rho'(r,t)r\pi}{-3+8r^2\pi\rho(r,t)}.$

$R_{11} = -4\frac{3456\dot{\rho}(r,t)r^5\pi^3\rho(r,t)^2 - 72\rho''(r,t)r^4\pi^2\rho(r,t) + 144\rho'(r,t)^2r^4\pi^2 - 1296r^2\pi^2\rho(r,t)^2 + 162\dot{\rho}(r,t)r\pi + 3456r^4\pi^3\rho(r,t)^3 - 3072\dot{\rho}(r,t)r^7\pi^4\rho(r,t)^3 + 576r^6\ddot{\rho}(r,t)\pi^3\rho(r,t)^2 - 1296\dot{\rho}(r,t)r^3\pi^2\rho(r,t) + 27\rho''(r,t)r^2\pi + 162\pi\rho(r,t) - 216r^4\ddot{\rho}(r,t)\pi^2\rho(r,t) + 27r^2\ddot{\rho}(r,t)\pi - 3072r^6\pi^4\rho(r,t)^4 - 512r^8\ddot{\rho}(r,t)\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^4}.$

$R_{12} = 0.$

$R_{13} = 0.$

$R_{20} = 0.$

$R_{21} = 0.$

$R_{22} = -8r^2\pi\rho(r,t) - \frac{8}{3}\dot{\rho}(r,t)r^3\pi.$

$R_{23} = 0.$

$R_{30} = 0.$

$R_{31} = 0.$

$R_{32} = 0.$

$R_{33} = -\frac{8}{3}\dot{\rho}(r,t)\sin(\theta)^2r^3\pi - 8\sin(\theta)^2r^2\pi\rho(r,t).$

$\boxed{R^i_{\ \nu}}$

$R^0_{\ 0} = -4608\frac{r^4\pi^3\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} - 192\frac{\rho'(r,t)^2r^4\pi^2}{(-3+8r^2\pi\rho(r,t))^3} + 4096\frac{r^6\pi^4\rho(r,t)^4}{(-3+8r^2\pi\rho(r,t))^3} + 4096\frac{\dot{\rho}(r,t)r^7\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} + \frac{2048}{3}\frac{r^8\ddot{\rho}(r,t)\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} - 36\frac{\rho''(r,t)r^2\pi}{(-3+8r^2\pi\rho(r,t))^3} - 36\frac{r^2\ddot{\rho}(r,t)\pi}{(-3+8r^2\pi\rho(r,t))^3} - 216\frac{\dot{\rho}(r,t)r\pi}{(-3+8r^2\pi\rho(r,t))^3} - 4608\frac{\dot{\rho}(r,t)r^5\pi^3\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3} + 288\frac{r^4\ddot{\rho}(r,t)\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} - 768\frac{r^6\ddot{\rho}(r,t)\pi^3\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3} + 96\frac{\rho''(r,t)r^4\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} - 216\frac{\pi\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} + 1728\frac{\dot{\rho}(r,t)r^3\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} + 1728\frac{r^2\pi^2\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3}.$

$R^0_{\ 1} = -24\frac{\rho'(r,t)r\pi}{(-3+8r^2\pi\rho(r,t))^2}.$

$R^0_{\ 2} = 0.$

$R^0_{\ 3} = 0.$

$R^1_{\ 0} = \frac{8}{3}\rho'(r,t)r\pi.$

$R^1_{\ 1} = -4608\frac{r^4\pi^3\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} - 192\frac{\rho'(r,t)^2r^4\pi^2}{(-3+8r^2\pi\rho(r,t))^3} + 4096\frac{r^6\pi^4\rho(r,t)^4}{(-3+8r^2\pi\rho(r,t))^3} + 4096\frac{\dot{\rho}(r,t)r^7\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} + \frac{2048}{3}\frac{r^8\ddot{\rho}(r,t)\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} - 36\frac{\rho''(r,t)r^2\pi}{(-3+8r^2\pi\rho(r,t))^3} - 36\frac{r^2\ddot{\rho}(r,t)\pi}{(-3+8r^2\pi\rho(r,t))^3} - 216\frac{\dot{\rho}(r,t)r\pi}{(-3+8r^2\pi\rho(r,t))^3} - 4608\frac{\dot{\rho}(r,t)r^5\pi^3\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3} + 288\frac{r^4\ddot{\rho}(r,t)\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} - 768\frac{r^6\ddot{\rho}(r,t)\pi^3\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3} + 96\frac{\rho''(r,t)r^4\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} - 216\frac{\pi\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} + 1728\frac{\dot{\rho}(r,t)r^3\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} + 1728\frac{r^2\pi^2\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3}.$

$R^1_{\ 2} = 0.$

$R^1_{\ 3} = 0.$

$R^2_{\ 0} = 0.$

$R^2_{\ 1} = 0.$

$R^2_{\ 2} = \frac{8}{3}\dot{\rho}(r,t)r\pi + 8\pi\rho(r,t).$

$R^2_{\ 3} = 0.$

$R^3_{\ 0} = 0.$

$R^3_{\ 1} = 0.$

$R^3_{\ 2} = 0.$

$R^3_{\ 3} = \frac{8}{3}\dot{\rho}(r,t)r\pi + 8\pi\rho(r,t).$

$\boxed{R}$

$R = -18432\frac{r^4\pi^3\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} - 384\frac{\rho'(r,t)^2r^4\pi^2}{(-3+8r^2\pi\rho(r,t))^3} + 16384\frac{r^6\pi^4\rho(r,t)^4}{(-3+8r^2\pi\rho(r,t))^3} + \frac{32768}{3}\frac{\dot{\rho}(r,t)r^7\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} + \frac{4096}{3}\frac{r^8\ddot{\rho}(r,t)\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} - 72\frac{\rho''(r,t)r^2\pi}{(-3+8r^2\pi\rho(r,t))^3} - 72\frac{r^2\ddot{\rho}(r,t)\pi}{(-3+8r^2\pi\rho(r,t))^3} - 576\frac{\dot{\rho}(r,t)r\pi}{(-3+8r^2\pi\rho(r,t))^3} - 12288\frac{\dot{\rho}(r,t)r^5\pi^3\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3} + 576\frac{r^4\ddot{\rho}(r,t)\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} - 1536\frac{r^6\ddot{\rho}(r,t)\pi^3\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3} + 192\frac{\rho''(r,t)r^4\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} - 864\frac{\pi\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} + 4608\frac{\dot{\rho}(r,t)r^3\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} + 6912\frac{r^2\pi^2\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3}.$

$\boxed{G^{\mu}_{\ \nu}}$

$G^{0}_{\ 0} = -\frac{8}{3}\tilde{\rho}(r,t)r\pi - 8\pi\rho(r,t).$

$G^{0}_{\ 1} = -24\frac{\rho'(r,t)r\pi}{(-3+8r^2\pi\rho(r,t))^2}.$

$G^{0}_{\ 2} = 0.$

$G^{0}_{\ 3} = 0.$

$G^{1}_{\ 0} = \frac{8}{3}\rho'(r,t)r\pi.$

$G^{1}_{\ 1} = -\frac{8}{3}\tilde{\rho}(r,t)r\pi - 8\pi\rho(r,t).$

$G^{1}_{\ 2} = 0.$

$G^{1}_{\ 3} = 0.$

$G^{2}_{\ 0} = 0.$

$G^{2}_{\ 1} = 0.$

$G^{2}_{\ 2} = \frac{4}{3}\frac{3456\tilde{\rho}(r,t)r^5\pi^3\rho(r,t)^2 - 72\rho''(r,t)r^4\pi^2\rho(r,t) + 144\rho'(r,t)^2r^4\pi^2 - 1296r^2\pi^2\rho(r,t)^2 + 162\tilde{\rho}(r,t)r\pi + 3456r^4\pi^3\rho(r,t)^3 - 3072\tilde{\rho}(r,t)r^7\pi^4\rho(r,t)^3 + 576r^6\tilde{\rho}(r,t)\pi^3\rho(r,t)^2 - 1296\tilde{\rho}(r,t)r^3\pi^2\rho(r,t) + 27\rho''(r,t)r^2\pi + 162\pi\rho(r,t) - 216r^4\tilde{\rho}(r,t)\pi^2\rho(r,t) + 27r^2\tilde{\rho}(r,t)\pi - 3072r^6\pi^4\rho(r,t)^4 - 512r^8\tilde{\rho}(r,t)\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3}.$

$G^{2}_{\ 3} = 0.$

$G^{3}_{\ 0} = 0.$

$G^{3}_{\ 1} = 0.$

$G^{3}_{\ 2} = 0.$

$G^{3}_{\ 3} = \frac{4}{3}\frac{3456\tilde{\rho}(r,t)r^5\pi^3\rho(r,t)^2 - 72\rho''(r,t)r^4\pi^2\rho(r,t) + 144\rho'(r,t)^2r^4\pi^2 - 1296r^2\pi^2\rho(r,t)^2 + 162\tilde{\rho}(r,t)r\pi + 3456r^4\pi^3\rho(r,t)^3 - 3072\tilde{\rho}(r,t)r^7\pi^4\rho(r,t)^3 + 576r^6\tilde{\rho}(r,t)\pi^3\rho(r,t)^2 - 1296\tilde{\rho}(r,t)r^3\pi^2\rho(r,t) + 27\rho''(r,t)r^2\pi + 162\pi\rho(r,t) - 216r^4\tilde{\rho}(r,t)\pi^2\rho(r,t) + 27r^2\tilde{\rho}(r,t)\pi - 3072r^6\pi^4\rho(r,t)^4 - 512r^8\tilde{\rho}(r,t)\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3}.$

$\boxed{G}$

$G = 18432\frac{r^4\pi^3\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} + 384\frac{\rho'(r,t)^2r^4\pi^2}{(-3+8r^2\pi\rho(r,t))^3} - 16384\frac{r^6\pi^4\rho(r,t)^4}{(-3+8r^2\pi\rho(r,t))^3} - \frac{32768}{3}\frac{\tilde{\rho}(r,t)r^7\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} - \frac{4096}{3}\frac{r^8\tilde{\rho}(r,t)\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^3} + 72\frac{\rho''(r,t)r^2\pi}{(-3+8r^2\pi\rho(r,t))^3} + 72\frac{r^2\tilde{\rho}(r,t)\pi}{(-3+8r^2\pi\rho(r,t))^3} + 576\frac{\tilde{\rho}(r,t)r\pi}{(-3+8r^2\pi\rho(r,t))^3} + 12288\frac{\tilde{\rho}(r,t)r^5\pi^3\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3} - 576\frac{r^4\tilde{\rho}(r,t)\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} + 1536\frac{r^6\tilde{\rho}(r,t)\pi^3\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3} - 192\frac{\rho''(r,t)r^4\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} + 864\frac{\pi\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} - 4608\frac{\tilde{\rho}(r,t)r^3\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^3} - 6912\frac{r^2\pi^2\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^3}.$

$\boxed{G^{\mu}_{\nu;\mu} = 0}$

$G^{0}_{0;\mu} = 0.$

$G^{1}_{1;\mu} = 0.$

$G^{2}_{2;\mu} = 0.$

$G^{3}_{3;\mu} = 0.$

$\boxed{g^{\mu\nu}\,\Gamma^{\lambda}_{\mu\nu} = 0?}$

$g^{\mu\nu}\,\Gamma^{0}_{\mu\nu} = 8192\frac{\rho'(r,t)r^8\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^4} - \frac{16384}{3}\frac{\rho'(r,t)r^{10}\pi^5\rho(r,t)^4}{(-3+8r^2\pi\rho(r,t))^4} - 216\frac{\rho'(r,t)r^2\pi}{(-3+8r^2\pi\rho(r,t))^4} - 4608\frac{\rho'(r,t)r^6\pi^3\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^4} + 1152\frac{\rho'(r,t)r^4\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^4}.$

$g^{\mu\nu}\,\Gamma^{1}_{\mu\nu} = -\frac{512}{3}\frac{\sin(\theta)^4r^9\pi^3\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^2} + 256\frac{r^3\pi^2\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^2} + 192\frac{r^7\pi^2\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^2} - 24\frac{\tilde{\rho}(r,t)r^2\pi}{(-3+8r^2\pi\rho(r,t))^2} - 72\frac{\sin(\theta)^4r^5\pi\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^2} - 1024\frac{r^5\pi^3\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^2} - 48\frac{r\pi\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^2} + 9\frac{\sin(\theta)^4r^3}{(-3+8r^2\pi\rho(r,t))^2} + \frac{16384}{9}\frac{r^7\pi^4\rho(r,t)^4}{(-3+8r^2\pi\rho(r,t))^2} + 9\frac{r^3}{(-3+8r^2\pi\rho(r,t))^2} - 512\frac{\tilde{\rho}(r,t)r^6\pi^3\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^2} - \frac{16384}{27}\frac{\tilde{\rho}(r,t)r^{10}\pi^5\rho(r,t)^4}{(-3+8r^2\pi\rho(r,t))^2} + 128\frac{\tilde{\rho}(r,t)r^4\pi^2\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^2} - \frac{32768}{27}\frac{r^9\pi^5\rho(r,t)^5}{(-3+8r^2\pi\rho(r,t))^2} + 192\frac{\sin(\theta)^4r^7\pi^2\rho(r,t)^2}{(-3+8r^2\pi\rho(r,t))^2} - 72\frac{r^5\pi\rho(r,t)}{(-3+8r^2\pi\rho(r,t))^2} - \frac{512}{3}\frac{r^9\pi^3\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^2} + \frac{8192}{9}\frac{\tilde{\rho}(r,t)r^8\pi^4\rho(r,t)^3}{(-3+8r^2\pi\rho(r,t))^2}.$

$g^{\mu\nu}\,\Gamma^{2}_{\mu\nu} = \cos(\theta)\sin(\theta)^3r^2.$

$g^{\mu\nu}\,\Gamma^{3}_{\mu\nu} = 0.$