Appendix-A

The Nonvanishing Components of Einstein's Tensor

[I] The nonvanishing components of Einstein's tensor for spacetime metric

$$ds^2 = e^{\nu(r)}dt^2 - e^{\lambda(r)}dr^2 - r^2\left(dr^2 + \sin^2\theta d\phi^2\right)$$

$$G_0^0 = e^{\lambda}\left[\frac{\lambda'}{r} - \frac{1}{r^2}\right] + \frac{1}{r^2},$$

$$G_1^1 = -e^{\lambda}\left[\frac{\nu'}{r} + \frac{1}{r^2}\right] + \frac{1}{r^2},$$

$$G_2^2 = -e^{-\lambda}\left[\frac{\nu''}{2} - \frac{\nu'\lambda'}{4} + \frac{\nu'^2}{4} + \frac{(\nu' - \lambda')}{2r}\right].$$

$$G_3^3 = G_2^2.$$

[II] The nonvanishing components of Einstein's tensor for spacetime metric

$$ds^2 = e^{\nu(r,t)}dt^2 - e^{\mu(t)+\lambda(r)}dr^2 - r^2 e^{\mu(t)}\left(d\theta^2 + \sin^2\theta d\phi^2\right)$$

$$G_0^0 = -e^{-(\mu+\lambda)}\left(\frac{\lambda'}{r} - \frac{1}{r}\right) - \frac{e^{-\mu}}{r^2} - \frac{3}{4}\dot{\mu}^2 e^{-\nu},$$

$$G_1^1 = e^{-(\mu+\lambda)}\left(\frac{\nu'}{r} + \frac{1}{r^2}\right) - \frac{e^{-\mu}}{r^2} - e^{-\nu}\left(\ddot{\mu} + \frac{3}{4}\dot{\mu}^2 - \frac{\dot{\mu}\dot{\nu}}{2}\right),$$

$$G_2^2 = e^{-(\mu+\lambda)}\left[\frac{\nu''}{2} + \frac{\nu'^2}{4} + \frac{\nu'}{2r} - \frac{\nu'\lambda'}{4} - \frac{\lambda'}{2r}\right] - e^{-\nu}\left(\ddot{\mu} + \frac{3}{4}\dot{\mu}^2 - \frac{\dot{\mu}\dot{\nu}}{2}\right).$$

$$G_3^3 = G_2^2,$$

$$G_0^1 = \frac{1}{2}e^{-(\mu+\lambda)}\dot{\mu}\nu'.$$

where dot denote differentiation with respect to t and prime denote differentiation with respect to r.