$\delta G_{\mu\nu}$ RW Conformal Flat Covariant v1

1 Section

$$\Delta_{00} = -3\dot{\Omega}^2\Omega^{-2} - p\Omega^2 + p\tilde{U_0}^2\Omega^2 + \tilde{U_0}^2\rho\Omega^2 + 2\Omega^{-1}\tilde{\nabla}_a\tilde{\nabla}^a\Omega - \Omega^{-2}\tilde{\nabla}_a\Omega\tilde{\nabla}^a\Omega \tag{1.1}$$

$$\Delta_{0i} = p\tilde{U_0}\tilde{U_i}\Omega^2 + \tilde{U_0}\tilde{U_i}\rho\Omega^2 + 2\Omega^{-1}\tilde{\nabla}_i\dot{\Omega} - 4\dot{\Omega}\Omega^{-2}\tilde{\nabla}_i\Omega \tag{1.2}$$

$$\begin{aligned}\Delta_{ij} = {} & -\dot{\Omega}^2\tilde{g}_{ij}\Omega^{-2} + 2\ddot{\Omega}\tilde{g}_{ij}\Omega^{-1} + \tilde{g}_{ij}p\Omega^2 + p\tilde{U_i}\tilde{U_j}\Omega^2 + \tilde{U_i}\tilde{U_j}\rho\Omega^2 - 2\tilde{g}_{ij}\Omega^{-1}\tilde{\nabla}_a\tilde{\nabla}^a\Omega + \tilde{g}_{ij}\Omega^{-2}\tilde{\nabla}_a\Omega\tilde{\nabla}^a\Omega \\ & -4\Omega^{-2}\tilde{\nabla}_i\Omega\tilde{\nabla}_j\Omega + 2\Omega^{-1}\tilde{\nabla}_j\tilde{\nabla}_i\Omega\end{aligned} \tag{1.3}$$

$$g^{\mu\nu}\Delta_{\mu\nu} = 3p - \rho + 6\ddot{\Omega}\Omega^{-3} - 6\Omega^{-3}\tilde{\nabla}_a\tilde{\nabla}^a\Omega \tag{1.4}$$