ADM Hamiltonian and Routh Functional

$$g^{1/2}\mathrm{R} = \frac{1}{g^{1/2}}\left(\pi^i_j\pi^j_i - \frac{1}{2}\pi^i_i\pi^j_j\right) + \frac{16\pi G}{c^3}\sum_a \left(m_a^2c^2 + g^{ij}p_{ai}p_{aj}\right)^{1/2}\delta_a$$

$$-2\partial_j\pi^j_i + \pi^{kl}\partial_i g_{kl} = \frac{16\pi G}{c^3}\sum_a p_{ai}\delta_a$$

3 Cordinate Conditions: $g_{ij} = \left(1+\frac{1}{8}\phi\right)^4\delta_{ij} + h^{\mathrm{TT}}_{ij}$

CC: $\pi^{ii} = 0, \quad \pi^{ij} = -g^{1/2}(K^{ij} - g^{ij}K), \quad \pi^i_i = \pi^{ij}h^{\mathrm{TT}}_{ij}$