$$\cancel{G}\frac{dP}{dr} = -\cancel{G}(\epsilon+P)G\frac{(M+4\pi r^3 P)}{r(r-2MG)}$$

$$\cancel{G}\frac{dM}{dr} = 4\pi r^2\epsilon\cancel{G}, \quad 2\frac{d\nu}{dr} = \frac{-2}{\epsilon+P}\frac{dP}{dr}$$

$\nu \to 2\nu$ <u>trik:</u> $P \to GP$

$m_0 \to m_0 G$ $\quad \epsilon \to G\epsilon$

$m_2 \to m_2 G$ $\quad M \to GM$

$$ds^2 = -e^{2\nu}[1+2(h_0+h_2P_2)]dt^2 + \frac{[1+2(m_0+m_2P_2)G/(r-2GM)]}{1-2GM/r}dr^2$$

$$+ r^2[1+2(v_2-h_2)P_2][d\theta^2+\sin^2\theta\,(d\varphi-\omega\,dt)^2] + \mathcal{O}(\Omega^2)$$

$$G\frac{dm_0}{dr} = 4\pi r^2\frac{d\epsilon}{dP}G(\epsilon+P)p_0^* + \frac{1}{12}j^2r^4\left(\frac{d\bar\omega}{dr}\right)^2 - \frac{r^3}{3}\frac{dj^2}{dr}\bar\omega^2$$

$$p_0^*(R) \to \frac{1}{3}(j_c^2\bar\omega_c^2)R^2$$

$$Gm_0^*(R) \to \frac{4\pi}{15}G(\epsilon+P)\left(\frac{d\epsilon}{dP}\Big|_c + 2\right)\underbrace{(j_0^2\bar\omega_c^2)R^5}_{3p_0^*(R)R^3}$$

$$\Rightarrow p_0^* \to p_0^*\cancel{G}$$

karena $[p_0^*] = [p_2^*]$ maka $p_2^* \to p_2^*\cancel{G}$

$$\frac{1}{r^4}\frac{d}{dr}\left(r^4 j\frac{d\bar\omega}{dr}\right) = -\frac{4}{r}\frac{dj}{dr}\bar\omega$$

$$\hookrightarrow \quad \frac{d\bar\omega}{dr} = -\frac{6}{r^4 j}\int dr'\,\frac{2r'^3}{3}\frac{dj}{dr'}\bar\omega$$

$-4\pi r'(\epsilon+P)e^{-\cancel{2}\nu/\cancel{2}}\left[1-\frac{2M}{r'}\right]^{-1/2}$

$e^{-\cancel{2}\nu/\cancel{2}}\left[1-\frac{2M}{r}\right]^{1/2}$

$$\rightarrow \quad \frac{d\bar{\omega}}{dr} = -\frac{6\, e^{2\nu/2}}{r^4\left(1-\frac{2MG}{r}\right)^{1/2}}\bar{K}, \qquad \frac{d\bar{K}}{dr} = \frac{8\pi}{3} r^4 (\epsilon+P) G \frac{e^{-2\nu/2}}{\left(1-\frac{2MG}{r}\right)^{1/2}}$$

$$j = GI$$

$$G\frac{dm_0}{dr} = 4\pi r^2 \frac{d\epsilon}{dP} G (\epsilon+P)\, p_0^* + \frac{1}{12} j^2 r^4 \left(\frac{d\bar{\omega}}{dr}\right)^2 - \frac{1}{3} r^3 \frac{dj^2}{dr}\bar{\omega}^2$$

$$\frac{dp_0^*}{dr} = \frac{1}{12}\frac{r^4}{r-2MG} j^2 \left(\frac{d\bar{\omega}}{dr}\right)^2 + \frac{1}{3}\frac{d}{dr}\left(\frac{r^3 j^2 \bar{\omega}^2}{r-2MG}\right)$$
$$- 4\pi G \frac{(\epsilon+P) r^2}{r-2MG} p_0^* - \frac{G m_0 r^2}{(r-2MG)^2}\left(8\pi P G + \frac{1}{r^2}\right)$$

$$\frac{dv_2}{dr} = -h_2 2\frac{d\nu}{dr} + \left(\frac{1}{r} + \frac{1}{2} 2\frac{d\nu}{dr}\right)\left[-\frac{1}{3} r^3 j^2 \bar{\omega}^2 + \frac{1}{6} j^2 r^4 \left(\frac{d\bar{\omega}}{dr}\right)^2\right]$$

$$\frac{dh_2}{dr} = \left\{-2\frac{d\nu}{dr} + \frac{r}{(r-2MG)\,2\left(\frac{d\nu}{dr}\right)}\left[8\pi(P+\epsilon)G - \frac{4MG}{r^3}\right]\right\} h_2 - \frac{4 v_2}{r\, 2\left(\frac{d\nu}{dr}\right)(r-2GM)}$$
$$+ \frac{1}{6}\left[\frac{1}{2} 2\frac{d\nu}{dr} r - \frac{1}{(r-2MG)\, 2\left(\frac{d\nu}{dr}\right)}\right] r^3 j^2 \left(\frac{d\bar{\omega}}{dr}\right)^2 - \frac{1}{3}\left[\frac{1}{2} 2\frac{d\nu}{dr} r + \frac{1}{(r-2GM)\, 2\left(\frac{d\nu}{dr}\right)}\right]$$
$$\times r^2 \frac{dj^2}{dr}\bar{\omega}^2$$