

Brill-Lindquist vs Misner-Lindquist BHs

$$-\left(1 + \frac{1}{8} \phi\right) \Delta \phi = \frac{16\pi G}{c^2} \sum_a m_a \delta_a \quad (h_{ij}^{\text{TT}} = 0 = p_{ai})$$

$$\phi = \frac{4G}{c^2} \left(\frac{\alpha_1}{r_1} + \frac{\alpha_2}{r_2} \right) \quad \text{unique solution}$$

$$\alpha_a = m_a - \frac{m_a + m_b}{2} + \frac{c^2 r_{ab}}{G} \left(\sqrt{1 + \frac{m_a + m_b}{c^2 r_{ab}/G} + \left(\frac{m_a - m_b}{2c^2 r_{ab}/G} \right)^2} - 1 \right)$$

$$H_{\text{BL}} = (\alpha_1 + \alpha_2) c^2 = (m_1 + m_2) c^2 - G \frac{\alpha_1 \alpha_2}{r_{12}}$$