RW Projections v3

Delta function distributional
From covariant to flat space
From spacetime to $D = 3$
Retarded vs Advanced
Integration by parts
Tetrad
13.3 boundary at infinity, must vanish!
Flat limit of ${g_\alpha}^{\prime\beta}(x, x') = {\delta_\alpha}^{\prime\beta} = \delta_a^{\beta'}\delta_\alpha^a$

$$\int d^4x\sqrt{-g}\ f(x)\delta_4(x, x') = f(x'), \qquad \int d^4x'\sqrt{-g'}\ f(x')\delta_4(x, x') = f(x) \tag{1}$$

$$\delta_4(x, x') = \frac{\delta_4(x - x')}{\sqrt{-g}} = \frac{\delta_4(x - x')}{\sqrt{-g'}} = (gg')^{1/4}\delta_4(x - x') \tag{2}$$