

Problem Set 4

Physics 483

Due April 17

Some abbreviations: Pol - Polchinski

1. Consider the string-frame action in D dimensions,

$$S = \frac{1}{2\kappa_0^2} \int d^D x \sqrt{G} e^{-2\Phi} \left(R - \frac{1}{12} H_{\mu\nu\lambda} H^{\mu\nu\lambda} + 4\partial_\mu \Phi \partial^\mu \Phi \right). \quad (1)$$

Find the metric transformation that takes the action to Einstein frame and write out the low-energy action in that frame.

2. Pol 8.3
3. Pol 8.5
4. Pol 8.6