Non-BPS Brane Actions

Department of Physics, Purdue University　新田　宗士
E-mail: nitta@physics.purdue.edu, nitta@het.phys.sci.osaka-u.ac.jp

The action for a non-BPS p=2 brane embedded in a flat N=1, D=4 target superspace is obtained through the method of nonlinear realizations of the associated super-Poincare symmetries. The brane excitation modes correspond to the Nambu-Goldstone degrees of freedom resulting from the broken space translational symmetry and the target space supersymmetries. The action for this p=2 brane is found to be an invariant synthesis of the Akulov-Volkov and Nambu-Goto actions. The dual D2-brane Born-Infeld action is derived. The invariant coupling of matter fields localized on the brane to the Nambu-Goldstone modes is also obtained.

This work has been done with T.E. Clark (Purdue U.) and T. ter Veldhuis (U. of Minnesota) [hep-th/0208184].