

Comparison Between Holographic Deformed AdS and Soft Wall Models for Fermions

We compare the holographic dressed soft wall and the exponentially deformed AdS models for spin $1/2$ fermions. We present the dressed soft wall model and its analytical solutions for the left and right modes, and the corresponding spectra, also including modifications considering hyperfine spin-spin and meson cloud interactions, as well as anomalous dimensions. Then, we discuss the deformed AdS model for spin $1/2$ fermions and present their effective Schrödinger equations for the left and right modes, for which only numerical solutions are available. Then, we consider a polynomial expansion of the effective potential of the deformed AdS model and show that in the quadratic approximation it leads to exact analytical solutions comparable with the dressed soft wall model and obtain the corresponding spectra for left and right modes. We show a numerical comparison of the mass spectra of spin $1/2$ baryons for the dressed soft wall and the deformed AdS models. We present a detailed relation between the quadratic approximation of the deformed AdS and the dressed soft wall models. We find that the left and right modes of these two models can be related with appropriate choice of the parameters in both cases.

Authors: NASCIMENTO, Ayrton (Universidade Federal do Rio de Janeiro); BOSCHI-FILHO, Henrique (Universidade Federal do Rio de Janeiro)

Orateur: NASCIMENTO, Ayrton (Universidade Federal do Rio de Janeiro)