

In this talk I will present a systematic procedure for the construction of solutions to the Einstein equations with negative cosmological constant coupled to a tracefree matter field in 4 dimensions. The main tool used in this work are the conformal Einstein field equations from which an evolution system for the relevant fields is obtained. Exploiting the coordinate and conformal gauge freedom, as well as providing suitable initial and boundary data, local existence and uniqueness of solutions is proved. I will briefly discuss some particular cases of interest such as the Maxwell, Yang–Mills and conformally invariant scalar fields. Given the characteristics of this construction, its numerical implementation may be more friendly to current codes.