



UNIVERSITY OF MIAMI  
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### **Dynamical Tension Strings with Target Scale Symmetry producing DE, DM and why 4D?**

#### **Abstract**

In the modified measure formulation string or branes the tension appear as an additional dynamical degree of freedom. Furthermore in the presence of an additional background scalar field that couples to the strings and locally changes the tension, the tension field really dynamical and the theory has an intrinsic target space scale symmetry. When many types of strings probing the same region of space are considered this tension scalar is constrained by the requirement of quantum conformal invariance. For the case of two types of strings probing the same region of space with different dynamically generated tensions, there are two different metrics, associated to the different strings. Each of these metrics have to satisfy vacuum Einstein's equations and the consistency of these two Einstein's equations determine the tension scalar. The universal metric, common to both strings generically does not satisfy Einstein's equation. We review a case where two string dependent metrics considered here are flat space in Minkowski space and Minkowski space after a special conformal transformation and leads to a well defined brane world solution. We review how the model avoid swampland constraints making treatments for Dark energy and inflation more realistic and how strings with a different tension appear as Dark Matter to us. Since the Dark strings and since the visible strings share the space time, including the same compactification, and since the compactification determines the particle content, we argue that the dark strings lead to Dark copies of the standard model. An argument that many copies will lead to 4D effective spacetime as a consequence of a target space scale symmetry restoration.