Taylor Larrechea

Dr. Gustafson

Math 365

April 21, 2018

MPA Seminar

On April 19th, 2018 I attended Bret A. Brouse’s seminar on cosmology. In his talk he discussed modeling other dimensions in space off our current 4D universe that we live in today. There was an interesting relationship that he found in research that related to variables concerning dynamical compactification and accelerated expansion. But first he discussed the relationships between higher dimensional scale factors and our 3D scale factor. The relationship is as follows,

(1)

Where the *d(t)* in (1) is the higher dimensional scale factor and the 3D scale factor is *a(t)*. It should be noted that as the *n* value in (1) increases, *d(t)* begins to shrink also known as dynamical compactification. This relationship then means that we cannot have accelerated expansion and dynamical compactification at the same time. In the case of our universe we have accelerated expansion and from Bret’s research we found that this means that our universe doesn’t have dynamical compactification. Result (1) is the most relevant thing pertaining to mathematical modeling that Bret talk about. This relationship helps us understand the world around us and what we should expect in other universes theoretically. So it is kind of a model, but it is describing qualitative behavior rather than quantitative.