Compact Structures in Nonlinear Gravity[1] ALLEGRA FASS, TOM GIBLIN, Kenyon College — The Kenyon College Cosmology Lab uses a numerical tool called GABE that evolves the universe on cosmological scales, on a cartesian grid. However, non-linear processes in the early universe lead to the formation of compact structures, and a new tool is needed to study these structures in detail. To study said compact objects, it is more useful to reframe the problem in terms of spherical polar coordinates. I will introduce our new computational tool, specifically designed to study compact objects, and give examples of how it can be used to understand some of the biggest problems in high energy physics.

[1]Clare Boothe Luce Undergraduate Research Scholar Program

Allegra Fass
Kenyon College

Date submitted: 10 Jan 2020 Electronic form version 1.4