PHY 499.5: Introduction to Numerical Relativity
Literature Review Assignment

There will be a series of four literature review assignments during this course. The task is to write a review paper *1000-2000 words (2-4 pages)* in length on select topics. These topics will be amongst those covered in the course, but review papers will be required to focus on specific aspects of them.

Assignment IV
13/04/2022

Einstein field equations allow for more degrees of freedom than there are physically independent ones. Therefore we can fix some of these degrees of freedom in a way that makes the resulting evolution system amenable to numerical treatment. During this course we have studied a few different formulations of Einstein equations, such as the generalized harmonic formulation. A precursor to it was proposed by Kidder, Scheel and Teukolsky in [2].

Write a brief summary of [1]. Focus on what makes its evolution system distinct. Highlight its most important difference versus the generalized harmonic evolution system of [2].

[1] <https://journals.aps.org/prd/abstract/10.1103/PhysRevD.64.064017>
[2] <https://iopscience.iop.org/article/10.1088/0264-9381/23/16/S09>