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Towards Binary Black Hole Mergers in Einstein-Maxwell-Dilaton-Axion Theory[1] SEBASTIAN VANDER PLOEG FALLON, Carleton College, ERIC HIRSCHMANN, DAVID NEILSEN, Brigham Young University —
If detected, differences between the observed gravitational wave signatures of binary black hole mergers and the signatures predicted by general relativity could provide direct evidence of the improvements that a new theory of gravity might require. We describe numerical approaches to predict the gravitational wave signatures from the collision of two Kerr-Sen black holes in Einstein-Maxwell-dilaton-axion (EMDA) theory. Being able to do this will allow us to compare gravitational wave signatures from an alternative theory of gravity with the predictions of general relativity. We describe our efforts in this direction. In particular, we detail our code generation techniques, our approach to solving the resulting BSSN equations with Kerr-Sen initial data, some initial tests, and some preliminary results of the code.

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