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**Visualizing relativistic astrophysics simulations using YT**[1] DENYZ MELCHOR, California State University, Fullerton, SAUL TEUKOLSKY, NILS DEPPE, Cornell University, SIMULATING EXTREME SPACETIMES COLLABORATION — Visualizations of numerical-relativity simulations are important both for helping scientists gain insight into numerical results and for helping to share the excitement of gravitational-wave science with the public. In this talk, I present results using new tools to visualize simulations from the Simulating eXtreme Spacetimes (SXS) Collaboration. Specifically, I updated and extended an existing python code, using the YT Project package, for visualizing gravitational waves from simulations of merging black holes. A major contribution was made to generalize the code to support visualizing both gravitational waves at a specific radius away from the binary and gravitational waves after they have been extrapolated to infinity. I also present results for a new YT-based tool to visualize simulations with matter in them, such as binary neutron stars, binary neutron star-black hole, and accretion disk simulations. SXS simulations output data as a collection of hexahedral elements, but these need to be reinterpreted as a collection of tetrahedral elements for YT to visualize them. I present results from an algorithm that I developed and implemented to perform this reinterpretation.

[1]Cornell Astronomy and Astrophysics Research Experience for Undergraduates

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