Interpolating Detailed Simulations of Kilonovae[1] MARKO RISTIC, BENJAMIN CHAMPION, RICHARD O'SHAUGHNESSY, Rochester Institute of Technology, RYAN WOLLAEGER, OLEG KOROKBIN, Los Alamos National Laboratory, EVE CHASE, Northwestern University, CHRISTOPHER FRYER, AIMEE HUNGERFORD, CHRISTOPHER FONTES, Los Alamos National Laboratory —

Starting with a grid of 2D anisotropic simulations of kilonova light curves covering a wide range of ejecta properties, we apply adaptive-learning techniques to iteratively choose new simulations and produce high-fidelity surrogate models for those simulations. These surrogate models allow for continuous evaluation across model parameters while retaining the microphysical details about the ejecta. We demonstrate how to use our interpolated models to infer kilonova parameters. With our model, we estimate the ejecta responsible for the emission associated with GW170817. In the future, we plan to apply our methods to more physically complex kilonova simulations for a deeper understanding of neutron star merger ejecta properties.

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