Surrogate models for EOB gravitational waveforms SCOTT FIELD, Univ of Maryland-College Park, CHAD GALLEY, Caltech, JAN HESTHAVEN, Ecole Polytechnique Federale de Lausanne, JASON KAYE, Brown University, MANUEL TIGLIO, Univ of Maryland-College Park — Parameterized gravitational waves models specified through ordinary differential equations often carry large evaluation costs. These costs constitute a major bottleneck for many important applications such as Bayesian parameter estimation which can require thousands or millions of model evaluations. In these multi-query contexts the cost per model evaluation dominates the overall simulation time. I will describe how surrogate models can be used to quickly evaluate an underlying parameterized waveform model. Surrogates are built by accumulating model evaluations at a representative few parameter values and tying together these samples. This offline building stage needs to be performed only once, while its subsequent online use is computationally inexpensive to evaluate. I will show how surrogates can be used to speed up the generation of effective one body waveforms by many orders of magnitude without sacrificing accuracy.