Surrogate models for EOB gravitational waveforms SCOTT
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veristy, MANUEL TIGLIO, Univ of Maryland-College Park — Parameterized grav-
itational 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 eval-
uation dominates the overall simulation time. I will describe how surrogate models
can be used to quickly evaluate an underlying parameterized waveform model. Sur-
rogate models 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 in-
expensive 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.

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