Eccentric Post-Newtonian Bursts NICHOLAS LOUTREL, NICOLAS YUNES, Montana State University, FRANS PRETORIUS, Princeton University — Gravitational wave emission from eccentric compact binaries is highly peaked around pericenter passage. As such, the gravitational wave signal looks like a sequence of discrete bursts in time-frequency space, as opposed to a continuous signal. Due to the relatively low power contained in each burst, standard matched filtering techniques may be impractical for extracting the parameters of the signal. Alternatively, one can stack the power within each burst, creating an enhanced data product and amplifying the signal-to-noise ratio. In order to do this, however, one must have some prior knowledge of where the bursts will occur in time-frequency space, i.e. a burst model. We here discuss a new method of constructing burst models that allows for a formulation at generic post-Newtonian (PN) order. We discuss its implementation at 3PN order and the accuracy of the full 3PN model by comparison to different eccentric PN Taylor approximants.

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