Targeting highly eccentric black hole binaries with a gravitational wave burst search PAUL BAKER, West Virginia Univ, NEIL CORNISH, Montana State Univ, SEAN MCWILLIAMS, West Virginia Univ, THE LIGO SCIENTIFIC COLLABORATION — Recent studies have suggested that a non-negligible fraction of coalescing binary black hole systems may enter the aLIGO band with large eccentricity. These systems are challenging to detect with template-based gravitational wave searches due to systematic modeling errors. Current gravitational wave burst searches may miss these signals, because their power can be spread across several time-separated bursts and a wider bandwidth than quasi-circular signals. We describe a new search method being developed for highly eccentric binary black hole systems. This search uses a fast wavelet denoising method that can increase signal-to-noise ratio by collecting several associated bursts. In the future we hope to implement this method to generate low latency triggers that can be further analyzed by the BayesWave burst parameter estimation pipeline.

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