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**Search for Gravitational Waves from Eccentric Binary Black Holes** VAIBHAV TIWARI, SERGEI KLIMENKO, Univ of Florida - Gainesville, LIGO BURST GROUP TEAM — Searches for compact binaries assume them to have circular orbits by the time the emitted gravitational radiation enter the frequency range of ground-based detectors. However such systems could also be produced through other channels, like dynamical interaction in galactic nuclei, when a significant fraction of formed binaries may maintain high eccentricities throughout their lifetime. These binaries have unique gravitational wave signatures and are not captured efficiently by searches designed for circular systems. We discuss this promising source of gravitational wave radiation and outline detection strategies with the initial and advanced ground-based detectors.

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