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Gravitational Wave Standard Sirens

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Inspiralling compact binaries are excellent standard sirens (the gravitational wave counterpart to standard candles), in that their gravitational wave measurements allow for self-calibrated absolute source distances. Therefore, when coupled with independent electromagnetic redshift measures, standard sirens allow us to map out the Universe's expansion history and enable precision estimates of cosmological parameters. We discuss here how well gravitational wave measurements of inspiralling compact binaries, together with simultaneous electromagnetic observations of short hard gamma ray bursts, constrain cosmological parameters (e.g., the Hubble constant) using different network configurations of advanced ground-based gravitational wave detectors. We finally address what constraints on short hard gamma ray burst progenitor models are possible using only a single channel of GW measurements.

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Classification de Session: More on the emission processes of GW and HEN