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POS-H109 – Fourier transform of gravitational wave signals from a pulsar

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Gravitational Wave (GW) detection from continuous sources such as pulsars is an anticipated discovery. However, due to exceedingly weak signals, detection is challenging. In this presentation, we detail the derivation of a Fourier transform of a continuous wave signal amenable for detection of the GW signal from a pulsar. We also present an easy to implement algorithm for computing peak heights and frequencies from analytical results arising from features in frequency evolution of gravitational wave signals. Our approach can handle gaps in data, allowing longer
coherence lengths. While the presentation focuses on GW detection from pulsar, our results are general and can be applied to any monochromatic signals of this form.

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