

Searching for Gravitational Waves in Noisy Detector Data

Search techniques

- How do you search for modeled signals?
 - What types of sources are modeled well enough for these techniques?
- How do you search for unmodeled signals?
 - What types of are mysterious enough to need these techniques?

Establishing detection confidence

- What is a *background*?
- How do we distinguish background from foreground?
- How do we measure background distributions?

Estimating Signal Parameter

- How do we tell what type of system created the GWs?
- How confident are we in our knowledge of system parameters?

Suggested Reading

- *Observation of Gravitational Waves from a Binary Black Hole Merger*. Phys. Rev. Lett. **116**, 061102 (2016).
- *Properties of the Binary Black Hole Merger GW150914*. Phys. Rev. Lett. **116**, 241102 (2016).