

HP ad hoc... next 10-20 years

- should think about **high SNR**
 - usually, at some accuracy-threshold, **new physical effects** become accessible and useful
 - Satellite timing precision $\sim 1e-9$ sec \rightarrow GPS
 - Earth's grav. multipoles \rightarrow annual variations in ground-water levels
- Here, perhaps
 - **multiple ringdown modes** may break inspiral degeneracies (spins??), tests of GR
 - **GW memory**
 - **BBH resonances (Ω_r vs. Ω_θ)**
 - **Signatures of near extremal spins**
- should plan for **more detectors** & knowledge of **both polarizations & LISA**
 - Do polarizations (and better sky-localization) break degeneracies?
 - Specifically: constraint on inclination will constrain precession & in-plane spins



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- should expect **serendipitous systems** that are particularly amenable to exploring new effects (“golden binaries”)
 - c.f. binary pulsar → pulsar magnetospheres
 - c.f. WD-pulsar binary → strong constraints on scalar-tensor theories
 - Here (perhaps): **high-ish mass-ratio** (precession); system oriented favourably to measure multiple ringdown modes
 - Should expect **improvements in statistics** for coherent analyses of many GW events
 - c.f. improvements in sophistication of CMB analyses during past decades / ever more sophisticated fore-ground removals
 - (note: CMB “*fore-ground*” ≡ GW “*back-ground*”)

