StronG BaD Wednesday Discussion on BH Spectroscopy, Memory and Recoil

Talks in this session:

Yagi: Current status on probing gravity with binary black hole coalescences
Favata: Gravitational-wave memory: an overview
Moore: Kicked waveforms: Observing black hole recoils in gravitational wave signals

List of discussion topics

PPE
-   Effect of non-aligned spins
-   Black Hole sensitivity
-   Merger and Ringdown

Spectroscopy
-   Is the ringdown just a "sum of damped sinusoids"?
-   What can we do to detect higher order [higher overtone? higher (l,m)?] ringdown modes with aLIGO?
-   Stacking multiple events coherently in phase: Bayesian model selection?
-   How accurately can we measure the ringdown frequency and damping time, and constrain non-GR effects?
-   Can we combine multiple events if such deviations from GR differ from one system to another?

Memory
-   Can we understand linear memory sources better? E.g., scattering events (what is the rate)? GRBs? SN? Cosmic strings? Other exotic sources? "Orphan" memory sources?
-   LIGO search for generic memory bursts: what new information can be derived from upper limits?
-   LIGO search for nonlinear memory (individual events vs. stacking); what does this teach us?
-   Temporal structure of the memory? [For non-precessing binaries, is this just the (2,0) mode? What about for precessing binaries?]
-   What about the "spin memory"?
-   Memory in alternative theories of gravity.

Kicks
-   Can BH kicks deteriorate ringdown tests?...
-   ...Or other tests of GR using merger+ringdown (e.g. consistency tests)
-   Using kicks to distinguish formation channels? [misaligned spins]
-   How can the kick be best included into waveform approximants?