# Radio Pulsars

- Ellipticity misaligned leads to $f_{\rm GW} = f_{\rm rot} + f_{\rm prec}$.
- Ellipticity in the equatorial plane lead to $f_{\rm GW} = 2\, f_{\rm rot}$.
- $\dot{E}_{\rm GR} = I\omega\dot{\omega} \Rightarrow \epsilon_{\rm max} = 6\sqrt{\dot{P}P^3_{\rm ms}}$.
- Theory: $\epsilon \lesssim 10^{-5}$.

| Parameter | B0531+21 | J0437-4715 |
|---|---|---|
| $P(\rm ms)$ | 33.4 | 5.757 |
| $d(\rm kpc)$ | 2.5 | 0.14 |
| $\epsilon_{\rm max}$ | $8 \times 10^{-4}$ | $2 \times 10^{-8}$ |
| $\epsilon_{\rm adv}$ | $8 \times 10^{-6}$ | $9 \times 10^{-9}$ |

- If one or both lines are detected information on the crust and/or neutron-star interior may be inferred.

## EM Quiet Pulsars

- Low B-field population (Blandford).
  - There may be $(B, P)_{\min}$ required for radio emission.
- Very young $\mathcal{O}(100)\,\mathrm{y}$ EM obscured SNR population.
  - $h(\epsilon_{\max}) \sim \frac{1}{R\sqrt{\sim \mathrm{age}}}$

Hence, large-area blind searches to extend NS Astronomy away from currently known rotational values.

# Accreting Pulsars

- Are LMXB's limited by GW emission due to mass asymmetries induced by accretion (Bildsten).
- If so, $h$ is derived from $L_x$ & $\omega$ and SCO X-1 is detectable by LIGO-II and a few other LMXB's are possible.

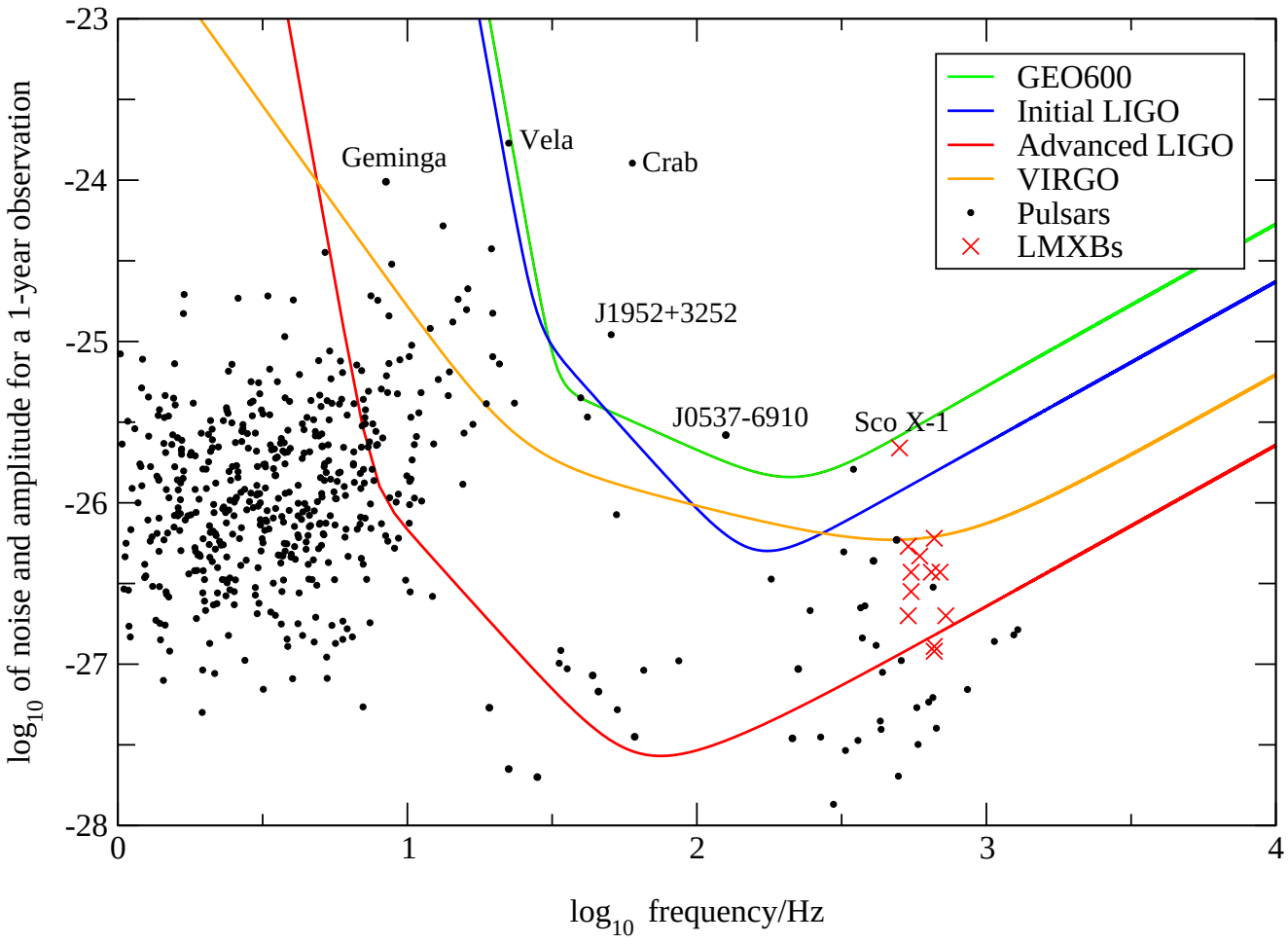


Figure 1: from Jones (gr-qc/0111007).

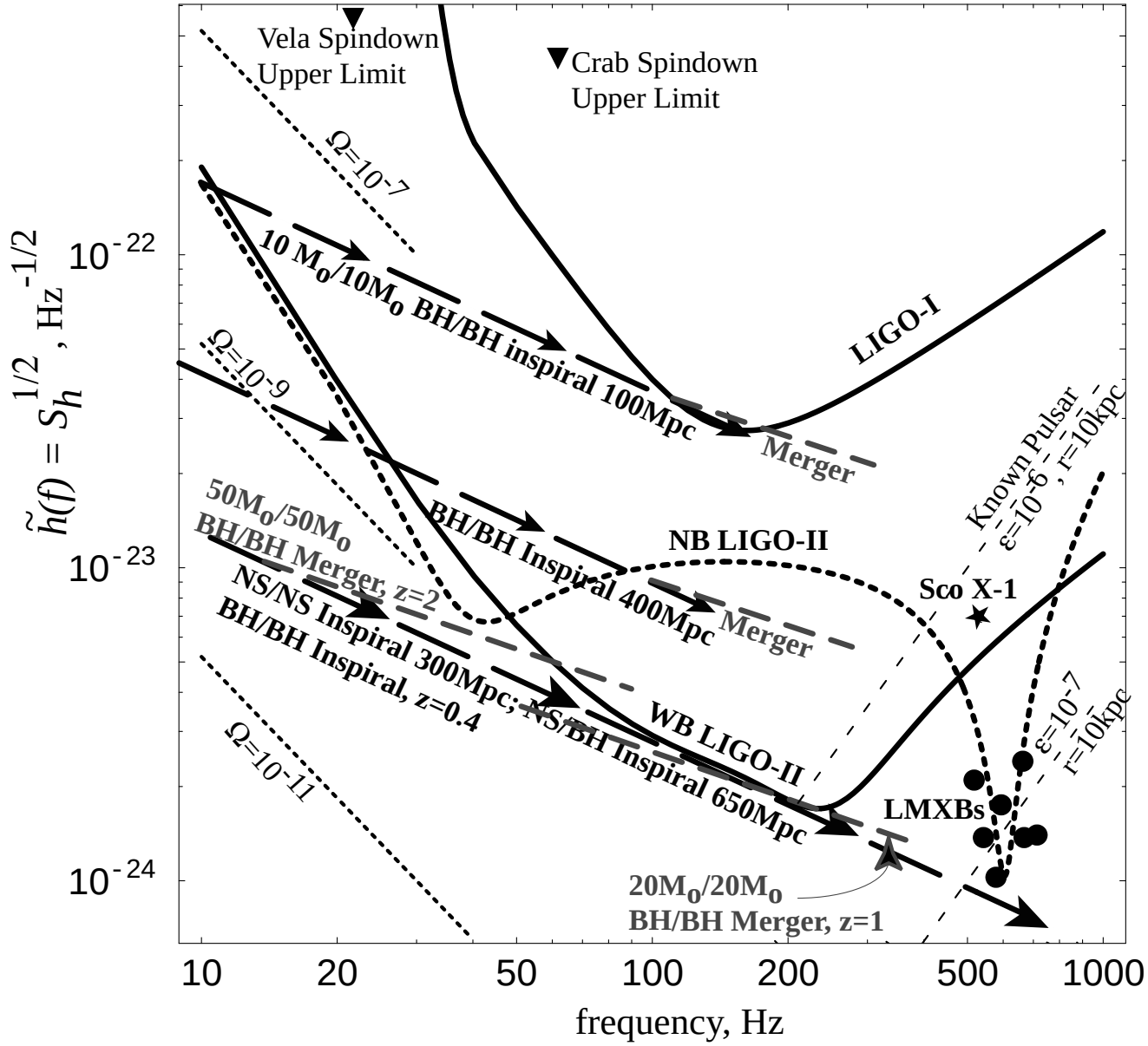


Figure 2: Figure 1 from Cutler and Thorne (2002). 20day integration for LMXBs and $10^7$s for Pulsars.