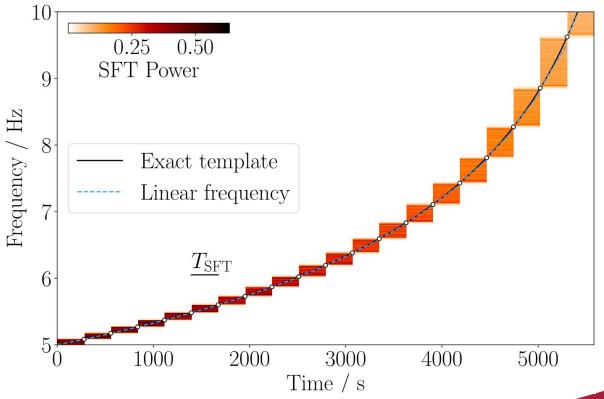
How to analyze long-duration CBC signals

with a time-varying detector response, non-stationary noise, and data gaps

Stop using this!

$$\langle x, h\rangle = 4\,\mathrm{Re}\int_0^\infty \mathrm{d}f\,\frac{\tilde{x}^*(f)\tilde{h}(f)}{S_\mathrm{n}(f)}$$



$$([d,h]) \doteq \Delta f \sum_{\alpha=0}^{N_{\mathrm{SFT}}-1} A_\alpha \Lambda_\alpha e^{i\varphi_\alpha} \mathcal{C}(f_\alpha, \dot{f}_\alpha; \tilde{d}_\alpha)$$

Use Short Fourier Transforms!

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github.com/rodrigo-tenorio/sfts

Long-duration signals are **hard** to analyze in **frequency domain**.

"2G methods but longer"-approach won't cut it.

SFTs provide **(100–1000)x acceleration and data compression** and **solve all problems** related to **long durations**.

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