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EUCAIFCON 2024 | UNIVERSITY OF AMSTERDAM | MAY 2024

SIMULATION BASED INFERENCE

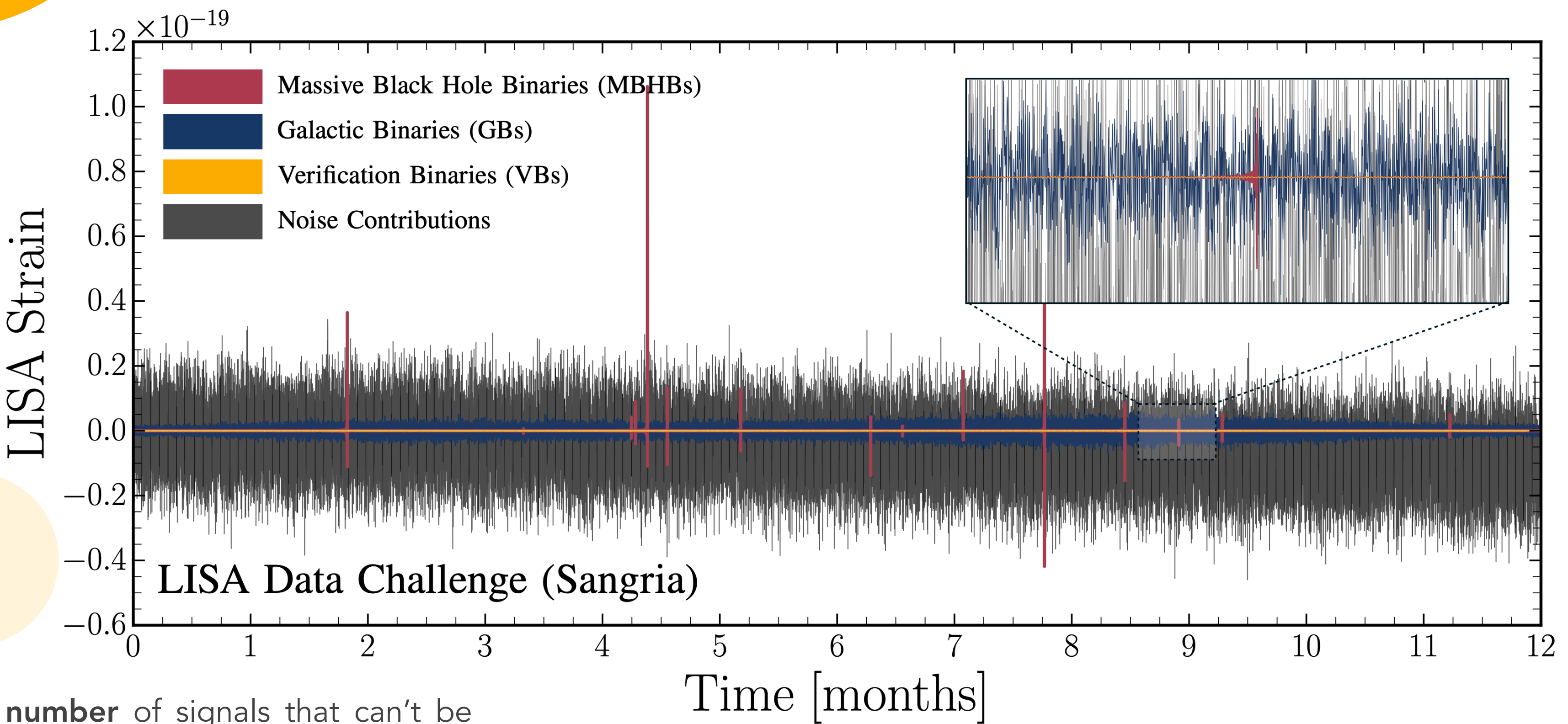
• FOR THE STOCHASTIC GW BACKGROUND •

Loads of **different signal classes**, all in the same data stream

THE EVERYTHING ALWAYS ALL-AT-ONCE PROBLEM

Unknown number of signals that can't be separated (highly **overlapping**, unlike LIGO)

So, (someone) has to carry out a joint analysis, naively **10000s of parameters**



POSTER: LOC 15, WEDNESDAY

STATEMENT #1 LISA DATA ANALYSIS IS A BIG CHALLENGE

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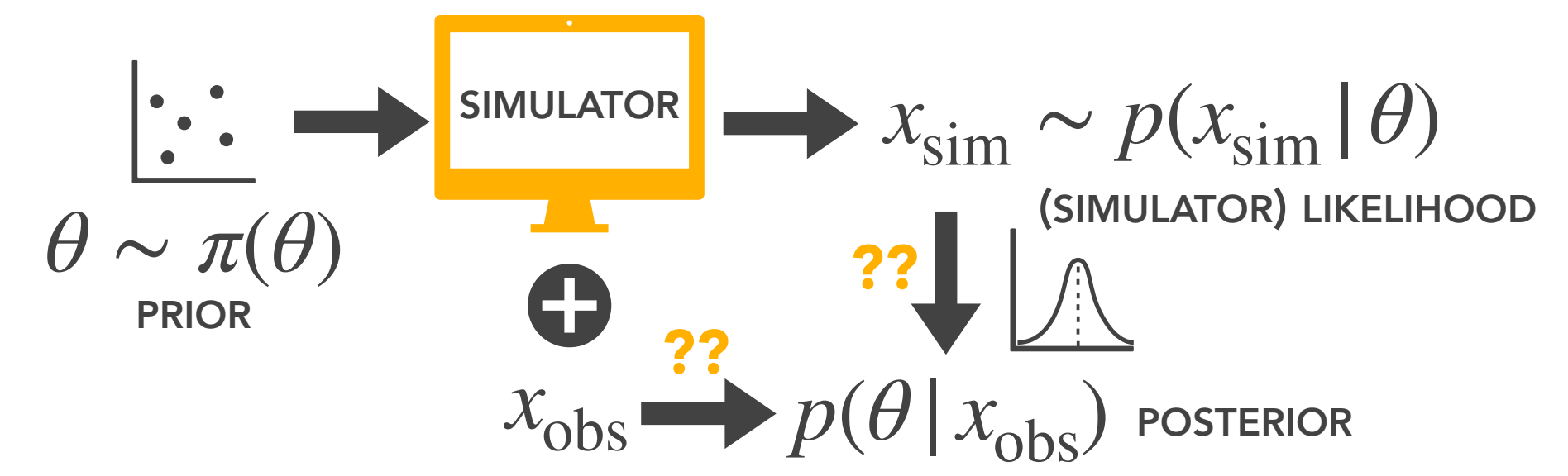
- **MARGINALISE** | SBI is naturally able to marginalise
"Turn the 10000-dim problem you don't want to solve into the 10-dim one you do"
- **AMORTISE** | SBI can (sometimes) be fully amortised
"Do the hard work once, and do it right"
- **TRANSFORM** | SBI can (in principle) look at the data in whatever (compressed) form you want
"Don't be constrained by data likelihoods"

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STATEMENT #2 **SBI CAN HELP**