Poster Session #F
Gravitational Wave detectors and other sources

F14

GPE: GPU-accelerated parameter estimation for gravitational waves

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We present GPE, a GPU-accelerated parameter estimation package for gravitational waves from compact binary coalescence sources. This stand-alone program is adapted from the nested sampling flavor of LALInference. Two main parallelization methods are implemented: (1) the frequency-domain waveform and likelihood calculations, (2) and the prior sampling portion in the nested sampling algorithm. We show that GPE can produce consistent results compared to LALInference, while demonstrating a 200-400 times speedup on one GPU compared to LALInference on one CPU. The high acceleration of GPE can facilitate the data-analysis of detected events, simulations for detector observing scenarios, and production of sky localization regions for EM follow-up.