Poster Session #D
Binary sources of Gravitational Waves and cosmology

D05

Implications for first-order cosmological phase transitions from the third LIGO-Virgo observing run

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We place constrains on the normalised energy density in gravitational waves from first-order strong phase transitions using data from Advanced LIGO and Virgo's first, second and third observing runs. First, adopting a broken power law model, we place 95% confidence level upper limits simultaneously on the gravitational-wave energy density at 25 Hz from unresolved compact binary mergers, and strong first-order phase transitions . We then consider two more complex phenomenological models, limiting at 25 Hz the gravitational-wave background due to bubble collisions and the background due to sound waves at 95% confidence level for temperatures above 10^8 GeV.