



Contribution ID: 35

Type: poster

## Cosmic Explorer: A Next-Generation Gravitational-Wave Observatory

*Wednesday, 19 May 2021 16:21 (1 minute)*

Cosmic Explorer (CE) is the US concept for a next-generation ground-based gravitational-wave observatory. CE will have the ability to determine the nature of the densest matter in the universe, reveal binary black hole (BH) populations throughout cosmic time, probe the history of the expanding universe, and explore Einstein's relativity with unprecedented precision. Sources that are barely detectable by Advanced LIGO and Advanced Virgo will be resolved with incredible precision. CE will detect millions of systems per year (compared to tens by the current network). The main driver of increased sensitivity is longer detector arms. The CE reference concept is two L-shaped facilities in the US, one with 40km baseline and a second with 20km baseline. CE will also benefit from R&D of improved seismic isolation, higher laser power and quantum noise reduction, improved coatings and suspensions, and better reduction of Newtonian noises. CE could be operational by the 2030s. This poster is based on a "Horizon Study" white paper currently under development.

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**Session Classification:** Poster session 1

**Track Classification:** Next detectors: Third generation design