Abstract Submitted
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Science Case for Cosmic Explorer and Einstein Telescope[1] BANGALORE SATHYAPRAKASH, Penn State University, GWIC-3G COLLABORATION, GWIC-3G SCIENCE CASE COLLABORATION, COSMIC EXPLORER COLLABORATION — LIGO and Virgo detections over the past four years have ushered in the new era of multi-messenger physics and astronomy. Gravitational-wave observations can be used to test general relativity in dynamical spacetimes, to gain new insights into the nature of matter under extreme physical conditions of gravity, density, and pressure, to discover the nature of dark matter, dark energy and other exotic objects, to explore the nature of most violent processes in the Universe, to study the formation and evolution of stellar mass black holes throughout the Universe and to probe the physics of the early history and evolution of the Universe. The science case for building Cosmic Explorer and Einstein Telescope that can probe deep into the cosmos and observe a variety of different processes is immensely rich and massively rewarding.

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