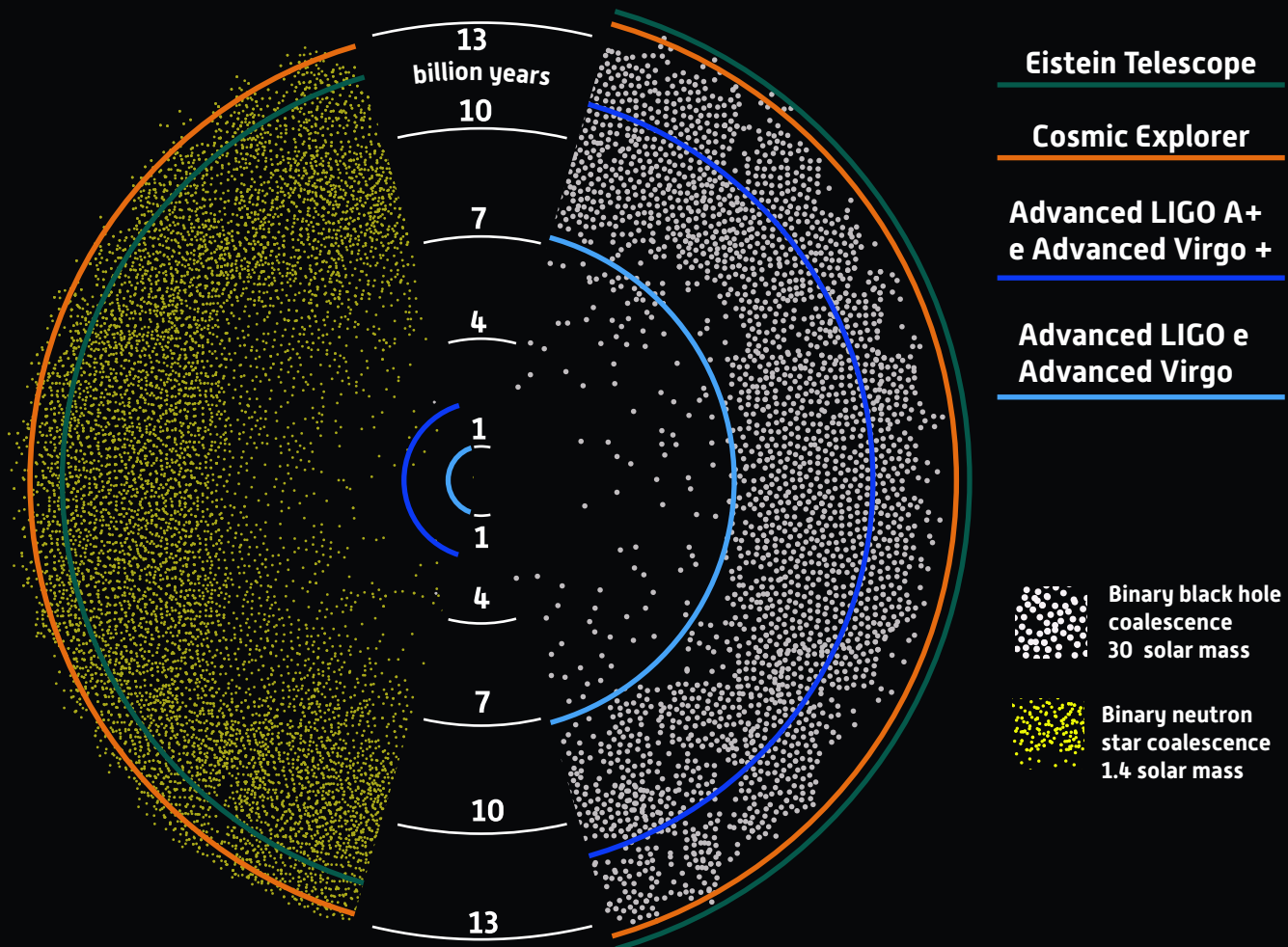


ET ITALY

Einstein Telescope



COMPARISON OF INTERFEROMETERS

ET will perform population studies of black holes and neutron stars, thus reconstructing our universe demography. The figure indicates the astrophysical horizon, in terms of age of the universe, for the detection of signals from the merger of black holes of 30 solar masses and neutron stars of 1.4 solar masses, with II generation detectors and with ET and Cosmic Explorer CE (III generation detectors). The dots represent a simulated population for each of the two source groups. The progress in sensitivity that will be obtained using ET and CE is evident. Their sensitivity is such that an observatory consisting of both detectors will be able to reveal the merger of binary systems throughout cosmic time, back to the origin of star formation. In future, an observatory composed of ground and space detectors, making use of ET, CE and of the LISA satellite interferometer, will also be able to make "multiband" detections, managing to follow a same compact objects merger during different phases of the evolution.