



## A BACK IN TIME JOURNEY

ET will study the universe through gravitational waves, even, for some kind of sources, up to cosmological distances. Through the observation of gravitational waves produced by the merger of black holes (30 solar masses each) and neutron stars (1.4 solar masses each) and of other extreme astrophysical events, ET will be able to trace the evolutionary history of the universe on a journey which arrives

back to the Big Bang. In the figure below, the comparison of the ET sensitivity (green) to that of the II generation detectors (blue) is given, in terms of their capability to go back in time, for different types of gravitational wave events. Some of these events have already been observed with current detectors (black hole and neutron star mergers), others are still undetected or even out of the horizon of current detectors.

