



Gravitational Wave Research

Early Universe Cosmology Group

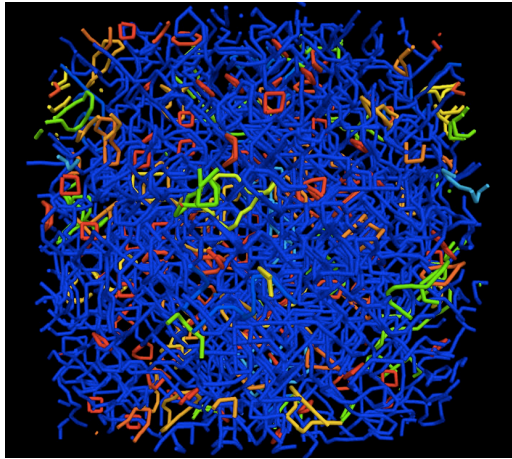
UPV/EHU

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UPV/EHU work on GR and Cosmology

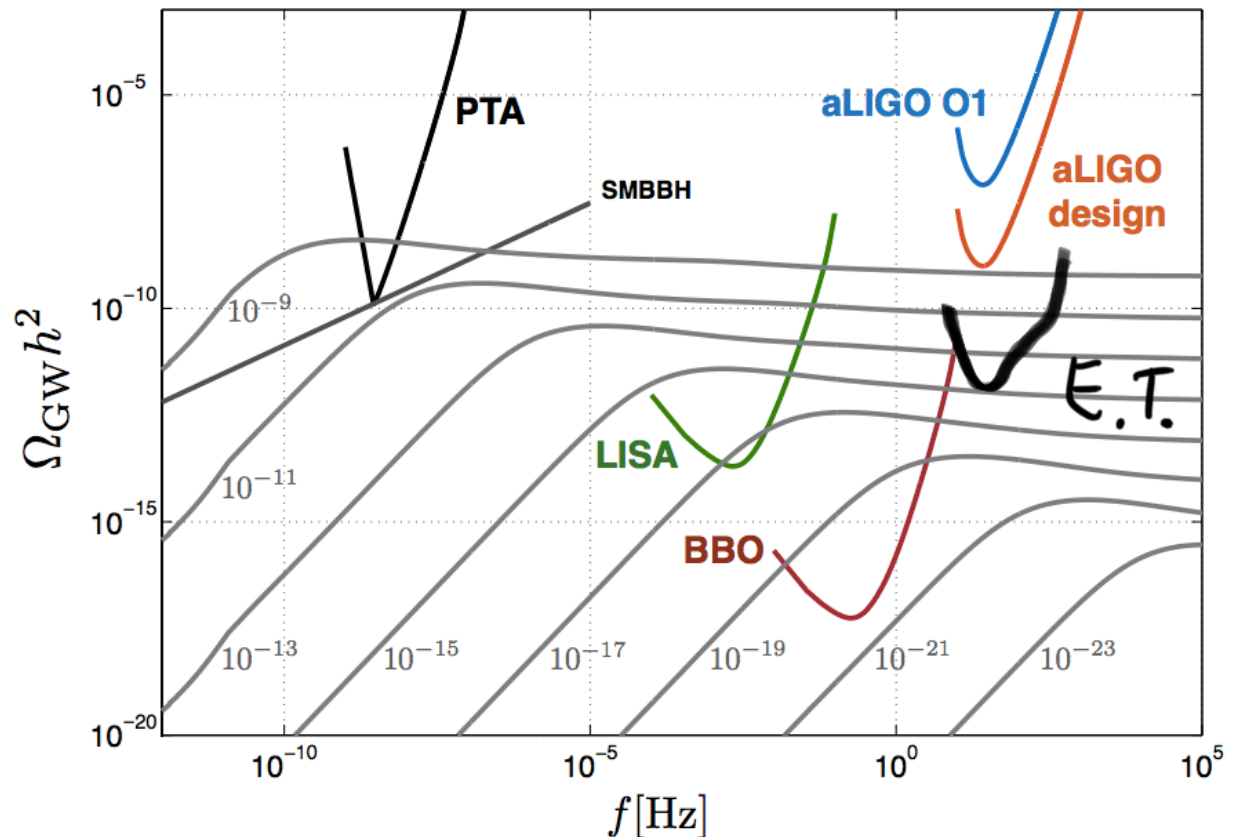
- Long tradition of work on many aspects of Theoretical Cosmology, Gravitation and High Energy Physics
- Already involved in LISA Consortium.
- Planned contributions for the Einstein Telescope:
 - Stochastic Backgrounds from several Cosmological Sources.
 - Cosmic Strings Networks
 - Inflation
 - Primordial Black Holes
 - Computation of templates and rates for transient events from Cosmic Strings.

GW from Cosmic String Networks



- We perform large scale simulations of the string networks and extract the relevant information to compute the stochastic GW background.

Only one parameter: String Tension

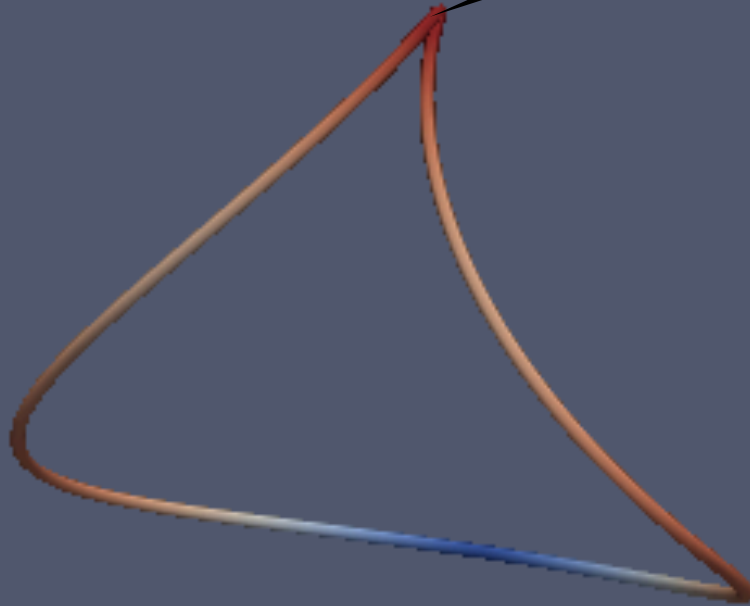


With ET we will be able to constrain the value of the string tension.

Transient signals from Cosmic Strings

The string evolution leads to cusps that produce a burst signal in the detector

Narrow beam of gw-radiation



We need to perform simulations to obtain the waveforms as well as the precise rate of these bursts in the universe.
(Gravitational Backreaction)

Other cosmological sources

- We are also involved in the computation of other cosmological sources of SGWB. In particular we are currently working on:
 - Lattice Field Theory computations of cosmological sources.
 - Primordial GW from Axionic Inflation
 - Axionic Strings
- Other related areas of research in the Cosmology Div.
 - Primordial Black Holes
- Connections to Fundamental Physics Division as well.