



Avviso di Seminario

Lunedì 3 Giugno ore 11:30

Sala Riunioni, 3 piano

Relatore: Dott. Giovanni Signorelli , INFN-Pisa

Titolo: The measurement of the B-mode polarization of the CMB:
the path towards the next satellite experiment.

Abstract:

The Cosmic Microwave Background (CMB) carries valuable information about the early Universe. The picture of CMB anisotropies conveys information about matter and energy content in the Universe at about 300000 years after the Big Bang, when radiation and matter decoupled. The CMB polarization allows us to go back to the very first fraction of a second after Big Bang. Primordial gravitational waves created during the inflationary era are at the origin of large-scale curl patterns in the CMB polarization map called the B-modes. The measurement of the very faint B-modes requires specialized detectors and electronics: superconducting bolometers coupled to antennas to be sensitive to the microwaves, read out by SQUIDs, amplifiers based on quantum interference in a superconducting loop, all living at sub-Kelvin temperatures. Several experiments are under way or being planned in this search, from ground, balloon, or satellite, as LSPE, in which INFN is involved, and LiteBIRD, that has just been selected as the next JAXA's strategic large mission, to be launched in the late 2020s to map the polarization of the CMB radiation over the full sky at large angular scales with unprecedented precision. Precise polarization maps of LiteBIRD will also provide us with valuable pieces of information on particle physics and astrophysics.

Il Direttore
Prof. Maurizio Busso