

Fundamental physics and Cosmology with Fast Radio Bursts

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Fast Radio Bursts (FRBs) are short transients lasting typically a few milliseconds. The pulse experience a dispersion due to scattering from free electrons along the line-of-sight, hence measuring the integrated electron density, the Dispersion Measure (DM). Since FRBs are visible over cosmological distances their statistic can be used to probe the distribution of the electron distribution in the Universe. In this talk I will show how DM statistics can be used to test the equivalence principle and how it can turn into a key calibration ingredient for upcoming cosmological surveys such as EUCLID or Rubin-LSST.

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