



High Energy Physics Lunch Seminar

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"Probing the non-Gaussian density field with clusters of galaxies"

Host: Martina Gerbino

March 5, 2019 – 12:00 p.m.-1:00p.m. Building 362/F-108

Abstract:

Considerable effort in cosmology today is focused on understanding the statistical nature and evolution of the (dark matter) density field that underlies the observed large-scale structure. Information about this field is mostly phrased in terms of two-point statistics, such as the power spectrum of galaxies or weak lensing, essentially approximating the large-scale structure as a Gaussian random field. However, the Universe is far more complex than that: Gravitational collapse turns the simple initial conditions into the cosmic web consisting of halos, filaments and large voids we see today. In my talk, I will show how we can use the abundance of galaxy clusters residing in the 'knots' of the cosmic web to probe the non-Gaussian shape of the density field. This gives us insights into the physics of structure formation, and provides at the same time a new method to search for deviations from the cosmological standard model.

HEP Lunch seminar info:

Please use the doodle poll to sign-up for lunch at
<https://doodle.com/poll/7k9rub8tz2u2ngp9>

Chicken Sandwich \$8, Sub Sandwich \$9, Salad \$7, Slice of Pizza- \$5 (all include coffee). Coffee 25¢. Pop or Water 75¢.

The HEP Lunch Seminar Schedule can be viewed at:

<https://indico.fnal.gov/event/19685/>