



High Energy Physics Lunch Seminar

Benedikt Diemer

Harvard University

“The edge of darkness, and other halo surprises”

Host: Martina Gerbino

May 7, 2019 – 12:00 p.m.-1:00p.m. Building 362/F-108

Abstract:

Structure in the universe arises from the non-linear collapse of primordial perturbations, forming dark matter halos that host galaxies at their centers. Despite the complexity of this process, the resulting dark halos are thought to obey a number of universal laws. I connect simple, sometimes analytical modeling with supercomputer simulations to show that the structure of dark halos is intimately connected to their history and dynamics. Contrary to conventional wisdom, I demonstrate that halos have a well-defined physical boundary called the splashback radius. I explore this radius in detail by tracking billions of simulated particles, and discuss how its recent discovery in the real universe marks the beginning of a new era for observations of the halo outskirts.

HEP Lunch seminar info:

Please use the doodle poll to sign-up for lunch at

<https://doodle.com/poll/xdfr3zfi5zvrn5d7>

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/20052/>