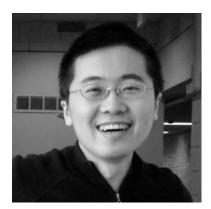


LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS (LEPP) Theory Seminar

## Yiming Zhong Boston U.



## **Core collapse halos**

Self-interactions of dark matter exists in a variety of dark matter and dark sector models. It provides a paradigm to solve small-scale problems. It also allows the halo to evolve due to the thermal exchange induced by selfinteractions. Through the evolution, a halo with a cuspy inner density profile develops a core first but collapsed at late time. The collapse usually takes longer than the age of the universe for typical self-interaction crosssection strengths that solve small-scale problems. Acceleration mechanisms, such as dissipative self-interactions or central baryon excess, can speed up the core collapse and may solve the puzzle of first supermassive black holes.

## Wednesday, Nov. 13, 2019 2:00pm 401 Physical Sciences Building

LEPP, the Cornell University Laboratory for Elementary-Particle Physics, and CHESS resources have merged and a new lab, (CLASSE), has formed. LEPP's primary source of support is the National Science Foundation. Visit us at www.lepp.cornell.edu