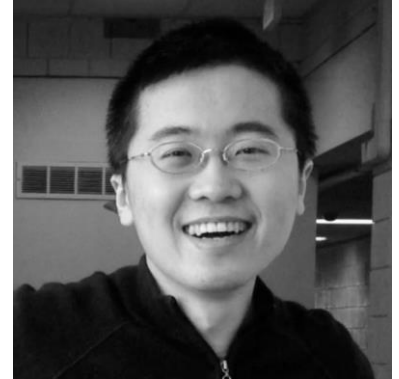


LABORATORY FOR ELEMENTARY-PARTICLE  
PHYSICS (LEPP)

# 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 self-interactions. 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 cross-section 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**