Kyle Willett

Astrophysics and citizen science with the Zooniverse platform

The morphology of a galaxy encodes its dynamical state in terms of the orbits of its stars, gas, and dust; this traces the physical processes responsible for a galaxy's evolution on cosmological timescales. Large-scale surveys have generated images of many hundreds of thousands of galaxies, which enables studies of morphology in large populations with high statistical precision. I will discuss results from the Galaxy Zoo project, which uses crowdsourced data from citizen scientists and images from telescopes including SDSS and Hubble. In particular, I will show how studies of morphology have probed the physics of fueling central black holes via bar-driven disk instabilities and mergers. Finally, I will discuss the larger role of citizen science and the wide variety of research being carried out through the online Zooniverse platform.