

SAN DIEGO STATE UNIVERSITY DEPARTMENT OF PHYSICS AND DEPARTMENT OF
ASTRONOMY COLLOQUIUM

Speaker: Dr. Jonathan Trump (Pennsylvania State University)

Topic: The Birth and Growth of Supermassive Black Holes: Coming of Age with
Space Telescope Imaging Spectrograph Surveys

Time: 3:30 PM, Monday, March 7, 2016 (refreshments served at 3:15 PM)

Place: Room 215, Physics-Astronomy Building (PA-215)

Abstract:

The past 20 years have revealed that supermassive black holes play an essential role in the formation and growth of galaxies. Every massive galaxy hosts a supermassive black hole in its center, and the black hole's mass is tightly coupled to the mass of the galaxy. Remarkably, the black hole - galaxy connection has been "self-maintained" from the adolescent universe ($z \sim 2$) to the current epoch, from Milky-Way progenitors to massive cluster galaxies, governed by coupled black hole accretion and galaxy star formation. Until recently the "chicken-or-egg" birth of galaxies and supermassive black holes has remained mysterious. I will show how imaging spectrograph surveys with the Hubble Space Telescope are revolutionizing our understanding of black hole formation, revealing a fossil record of massive black hole seeds in tiny galaxies. Similar imaging spectrographs are flagship instruments on the upcoming JWST, WFIRST, and Euclid space missions, enabling an exciting future for understanding the birth of primordial galaxies and their black hole seeds.