

# **CSU PHYSICS COLLOQUIUM**

## **“Rethinking the Role of Supermassive Black Holes in Galaxy Evolution”**

**Professor Ann Zabludoff**

**University of Arizona**

Monday, April 26<sup>th</sup> at 4:00 pm

Virtual via Zoom (see announcement for link)

### **Abstract**

While astronomers are working hard to detect the earliest galaxies and follow their evolution, we remain baffled by the present-day dichotomy between the two major galaxy classes: disk galaxies that are forming stars and spheroidal galaxies that are not. The key is to find galaxies in transition from one class to the other. We have identified thousands of such "post-starburst galaxies" whose dynamics, stellar populations, and structure are consistent with recent, dramatic evolution. This evolution is driven in large part by galaxy-galaxy interactions and mergers, as well as connected in complex ways to the galaxy's central, supermassive black hole. Like the well-known black hole-galaxy bulge mass correlation, there are surprising links between the properties of a galaxy on kiloparsec scales and its nucleus on parsec scales. I will discuss our work to identify and explain these links, including using them to classify astrophysical transients in the era of machine learning and the Vera Rubin Observatory's Legacy Survey of Space and Time.

### **Biography**

Prof Zabludoff earned undergraduate degrees in Physics and Mathematics at MIT, then moved down the road to Harvard for a PhD in Astronomy. She held postdoctoral fellowships at the Carnegie Institute in Pasadena and at University of California Santa Cruz before taking a faculty position in the Department of Astronomy at the University of Arizona. She is a member of the university's interdisciplinary Data Science Institute and is the leader of the HotShots citizen science project which searches for gravitational wave sources.