

Fall 2021 Colloquium

Department of Physics & Astronomy, A&M-Commerce

Oct 28, Thursday, 4-5 PM

Live Zoom Meeting

<https://tamuc.zoom.us/j/99681875042>

Meeting ID: 996 8187 5042

Astronomy

Citizen Science, Giant Ionized Clouds, and the History of Galactic Nuclei

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Astronomer William Keel majored in physics and astronomy at Vanderbilt University, and received a Ph.D at the University of California, Santa Cruz studying low-luminosity active galactic nuclei. After postdoctoral work at Kitt Peak National Observatory and Leiden University, he joined the faculty at the University of Alabama in 1987. His interests center on galaxies - active galaxies, interacting galaxies, dust in galaxies - as observed from radio to X-ray regimes. Much of his work in the last 15 years has followed up discoveries from the Galaxy Zoo citizen-science project. More on his research and outreach

activities may be found at <https://pages.astronomy.ua.edu/keel/>

Abstract

The signature discovery of the Galaxy Zoo citizen-science project has been Hanny's Voorwerp, a galaxy-sized gas cloud ionized by a quasar which has faded so rapidly that we see its bright phase only secondhand, observing gas as much as 150,000 light-years from it. Project participants have helped find a sample of over 40 similar objects, giving our first look at the history of active galactic nuclei on timescales from 30,000-200,000 years. About $\frac{1}{3}$ of these clouds require much more energy input than the observed nuclear sources can account, indicating that dramatic variability of active nuclei is common on these timescales. This is faster than simple models indicate for accretion disk changes; feedback between accretion and inflow may play a role. Our snapshot of the population of accreting supermassive black holes will remain incomplete without including these recently-faded objects.