



University
of Victoria

PHYSICS AND ASTRONOMY COLLOQUIUM (Online)

Dr. Megan Donahue
Michigan State University

“Baryon Cycles in The Biggest Galaxies”

Abstract

“I will review what we know and what we think we know about baryons (and electrons) in the universe by reflecting upon some of the things we have learned about the baryons in the largest and deepest gravitational structures in the universe: clusters of galaxies. I will show that the observational program must be inherently multi-wavelength, and that testing these ideas in more detail and in smaller, shallower gravitational potentials, such as around galaxies, will require a coherent and long-term approach to building new telescopes. It will also benefit from figuring out new ways to share results and information. This question requires experts working in cosmological-scale processes to understand and follow the insights gleaned from astronomers working at the many orders of magnitude smaller scales of how stars and black holes form and interact with their surroundings, and yet other experts working on the microphysics of magnetized, turbulent plasmas and radiation magnetohydrodynamics. Numerical simulations of complex processes are essential. How can any one person even appreciate the thousands of papers from these disparate communities? In the pre-pandemic days, even attending a few conferences per year was an expensive use of time and funds. Virtual conferences have not yet solved this issue. I will present a new result-sharing publishing pilot project created by Mark Voit under the “PubPub.org”, called Galactic Atmospheres, aimed to allow experts to advertise their work to other experts. The project has public- and pedagogical student-facing aspects as well, with the option to cross-publish contributions in the Bulletin of the American Astronomical Society. Working on complex, cross-disciplinary questions is not unique to astronomy, but our field has some unique aspects that may make an open, yet curated effort like this a valuable asset for making progress.”

Wednesday, March 16, 2022

3:30 p.m. PDT

via Zoom: <https://uvic.zoom.us/j/81228308604>