You are welcome to nominate speakers to colloquium@nao.cas.cn. The video and slides of previous colloquia and more information can be found at http://colloquium.bao.ac.cn/.

国台学术报告 NAOC COLLOQUIUM

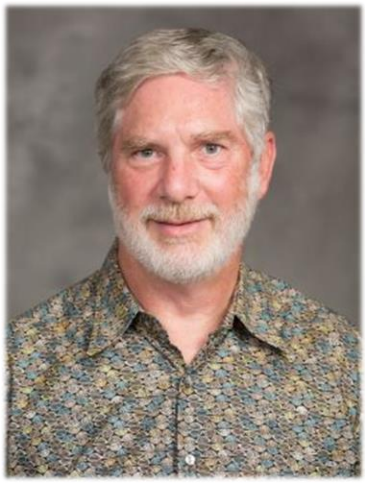
2019 年 第 9 次 / No. 9 2019

Time: Wednesday 2:30 PM, May.22th Location: A601, NAOC

The Baryon and Metal Content of Halos of Galaxies

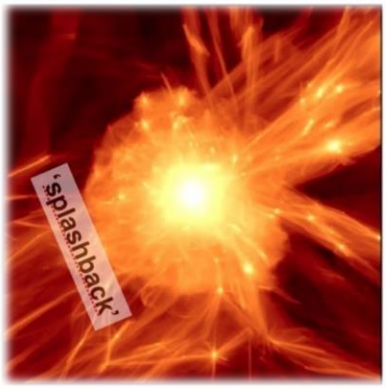
Prof. Joel N. Bregman

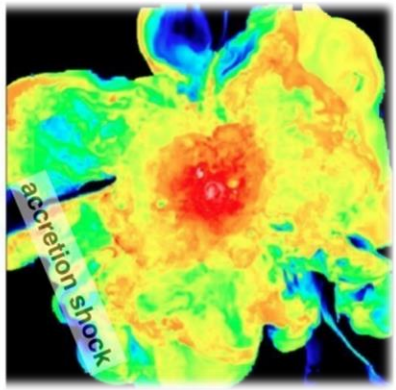
University of Michigan



Joel Bregman, the H.D. Curtis Professor of Astronomy at University of Michigan, is an expert in X-ray observation and theory, which he uses to account for the "missing baryons," or normal matter, in galaxies. He has been the Chair of Astronomy at the University of Michigan, and the chair of the high energy astrophysics division of the America Astronomical Society. Joel also serves in an advisory capacity for NASA, and served as the NASA chair for the IXO science definition team. His research has mainly focused on high energy astrophysics and on the gaseous component of the Universe. His work has included both observational and theoretical studies and he has also works on the development of future X-ray missions.

Abstract





Hot gas density distributions can be fitted to the X-ray emission and absorption observations of the Milky Way to determine the mass and metallicity, mainly within 50 kpc. We have now included optical depth effects in the critical O VII and O VIII lines and find the same result from three different data sets. An extended spherical hot halo is the main mass component, containing about 3-4E10 Msun within 250 kpc, significantly lower than the mass of missing baryons, about 1.7E11 Msun. The hot halo is rotating at 180 +/- 40 km/s within 50 kpc, the density declines as r^-3/2, and the metallicity is about half solar. Adding a disk component improves the fit but it is a minor contributor to the total mass. The missing baryons most likely lie beyond the virial radius, probably 2-3 R200. In nearby external galaxies, we detect a SZ signal when stacking the nearest dozen spiral galaxies with L ~ L*. This signal suggests a gas mass of about 7E10 Msun within R200, similar to (but larger) that found around the Milky Way.

All are welcome ! Tea and coffee will be served at 2:15 PM.