

COLORADO

CAFÉ SCIENTIFIQUE

TUESDAY 19 JANUARY 2010

at the Wynkoop Brewing Company

<http://www.wynkoop.com/>

Corner of 18th and Wynkoop in LoDo, Denver

About a block from Light Rail. Thirteen minutes by foot from Auraria.

THE EARLIEST STARS AND GALAXIES: LATEST RESULTS FROM HUBBLE

J. MICHAEL SHULL, PHD, PROFESSOR OF ASTROPHYSICS,
ASTROPHYSICAL AND PLANETARY SCIENCES, UNIVERSITY OF COLORADO BOULDER

As most of us know, the objects we can observe in the Universe are all moving apart, still propelled by the energy of the Big Bang. The objects that have travelled the farthest are the oldest. Distance is measured by redshift; that is, as objects retreat from us, the wavelengths of light they emit are stretched and lowered in the way that sound waves are lowered as a train moves away. Redshift (z) means that a characteristic absorbance line in the light spectrum is shifted towards the red. The new instruments on Hubble, and other experiments, have revealed the furthest objects yet. At a redshift of $z = 8.2$, a 10-second burst of gamma rays in the constellation Leo is the current record holder for the most distant observed GRB, as well as the most distant object of any kind. GRB 090423 is also the oldest known object in the universe, as the light from the burst took approximately 13 billion years to reach Earth. The event occurred roughly 630 million years after the Big bang, confirming that massive stellar births (and deaths) did indeed occur in the very early universe. What was there before there was light? Mike Shull will tell us what the current thoughts are.

EVERYONE IS WELCOME. The discussion starts at 6:30 in the Mercantile Room (no food service there). Come before 6 PM to leave yourself time to get something to eat, or stay and eat afterwards. We end around 8 PM.

There's no charge. The Wynkoop is generously providing the facility; we buy our own drinks. It is first come, first seated, and **seating is limited** so that everyone can take part in the discussion.

The Colorado Café Scientifique is organized by an informal group of faculty from CU and institutions up and down the Front Range, as well as science fans from industry, government and elsewhere. We welcome your input, including ideas for speakers and topics. Bring them with you to the next Café, or e-mail them and any questions to John.Cohen@UCDenver.edu

Essential information on our Web site at: <http://CafeSciColorado.org>