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TIME: Tuesday, 10:30 AM, June 25, 2013 **LOCATION: A601 NAOC**

Cosmological baryon density from the arrival times of single photons emitted by quasars

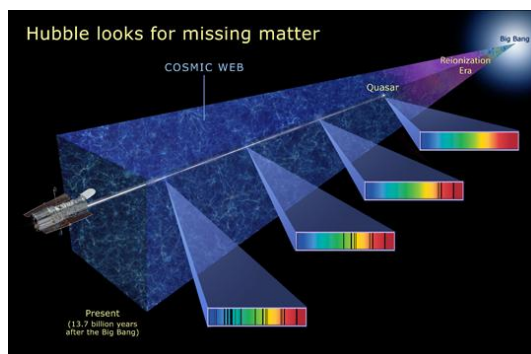
Prof. Richard Lieu (University of Alabama)



Richard Lieu is a Distinguished Professor at Department of Physics, University of Alabama in Huntsville. He obtained his PhD from Imperial College in 1981. He is broadly interested in quantum electrodynamics of strong magnetic fields, acceleration of particles in relativistic shocks, extreme-ultraviolet source catalogs, thermal and non-thermal processes in clusters of galaxies, sunyaev-Zel'dovich effect in the cosmic microwave background, cosmological applications of gravitational lensing and time delay.

Abstract

The arrival times of pulsed radiation at various wavelengths have routinely been used as a tool for measuring the column density of line-of-sight ionized baryons via the phenomenon of plasma dispersion. From cosmological distances, however, pulsar signals are too faint to observe. In a recent ApJL paper, we showed that even unpulsed signals from quasars could carry the imprint of dispersion, in the form of a slight statistical distortion of the non-Poisson (Hanbury-Brown Twiss) component of photon arrival time statistics. The theoretical basis of this technique of measuring the baryonic content of the universe is discussed, along with the prospects of securing the first detection of the effect. It will be demonstrated that radio and optical telescopes offer by far the best chance of success.



Suggested reading: Lieu & Duan 2013, ApJ, 763, L44

All are welcome! Tea, coffee, biscuits will be served at 10:15 A.M.

You are welcome to nominate speakers to Weimin Yuan (wmy@nao.cas.cn), Mei Zhang (zhangmei@bao.ac.cn), Licai Deng (licai@bao.ac.cn), Xuelei Chen (xuelei@cosmology.bao.ac.cn), Shude Mao (smao@nao.cas.cn)