cies. It is shown how this model can self-consistently explain the superluminous optical flux of QSO's, with observationally consistent values for n_e and R.

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15.06.10 The Dynamics of the Inter-Galactic Medium in the Vicinity of Clusters of Galaxies S. M. LEA, NASA-Ames Research Center. - A spherically symmetric hydrodynamic code has been developed to study the flow of matter in the vicinity of a rich cluster of galaxies. The IGM is assumed to be a fully ionized hydrogen-helium gas which initially partakes in the Hubble expansion in a Friedmann cosmological model with deceleration parameter q_o. Fully adiabatic solutions exhibit a cycling behavior of inflow and outflow phases, the latter being the result of an outward moving shock. The maximum temperature reached is about a billion degrees Kelvin. The resulting x-rav sources can explain the x-ray background between 2 and 100 kev and the cluster x-ray sources fairly well. Solutions with cooling included exhibit a very different evolution in high density ($q_o \sim \frac{1}{2}$) models, and lead to excessively large x-ray emissions.In low density ($q_o \leq .1$) models the adiabatic solutions are approached. The effects of thermal conductivity will also be discussed. In order that the x-ray background not be exceeded, $q_o < .1$ is required, or there must be an additional heat input into the gas in the cluster. The implications of these conclusions for both x-ray and radio source models are discussed.

15.07.10 Close Associations of Pairs of Objects at Different Distances. J.F. Dolan, Warner and Swasey Obs. - The equation given by Burbidge et al (1974, Nature, 248, 568) relating the a priori expected number of small angular separations between two dissimilar sets of objects as a function of the surface density of one set and the total number of objects in the other is found to be valid for the case of two classes whose distances are known to be totally non-overlapping, F stars in the Smithsonian Catalog in the direction of the North Galactic Pole, and galaxies in the Zwicky Catalogue in the same direction. Interesting examples of small angular separations will be exhibited. The result supports Burbidge et al's inference that the presently known cases of small angular separation between pairs of QSO's of different redshift, or between a QSO and a galaxy of the same redshift, can not be shown to prove or disprove the cosmological distances of QSO's with statistical confidence.

15.08.10 Proposed Absorption Redshift Systems for 4C 05.34 are due to Chance Coincidences. Y. P. VARSHNI, Univ. of Ottawa. - Using four well-defined rules, Bahcall and Goldsmith (1971 Ap. J. 170,17)(BG) have proposed eight absorption redshift systems for the QSO 4C 05.34. These systems identify 47 lines out of the 93 observed. BG have also analysed 10 nonsense spectra; they find that for the "average" nonsense spectrum, the number of acceptable redshifts is only 1.4, and the total number of lines identified is only 7. It is pointed out that BG have missed out a vital point, namely, the density distribution of lines, in generating their nonsense spectra. Following the basic ideas of Russell and Bowen (1929 Ap. J. 69, 196), ten nonsense spectra are generated which are similar to the real spectrum in all its statistical characteristic features. Such spectra are named ghost spectra. These are analysed using the rules of BG, and the results are as follows. For the "average" ghost spectrum, the number of acceptable redshifts is 8.4 ± 0.92, and the total number of lines identified is 39.5 ± 5.39. The problem of multiple identifications for an observed line is discussed, and the results obtained from the chance-coincidence hypothesis are compared to the actual ones. It is concluded that the number and properties of the absorption redshift systems proposed by BG for 4C 05.34 are insignificantly different from those that would be expected from chance coincidences. The foregoing results further strengthen the suggestion that there is no redshift in QSOs (Varshni, 1974 Bull. A.A.S. 6, 213, 308).

15.09.10 Spectral Analysis of the Distribution of Quasar Redshifts. J.W. Knight & P.A. Sturrock, Institute for Plasma Research, Stanford Univ. - A method of spectral analysis which does not require putting the data in bins has been examined by Yu and Peebles (1969 Ap.J. 158, 103). Lake and Roeder (1972 JRAS Canada 66, 111) used this technique on a sample of 200 quasar redshifts. Burbidge and O'Dell (1972 Ap.J. 178, 583) applied the technique to a larger sample of 346 quasar emission and absorbtion redshifts as well as related compact objects. Burbidge and O'Dell found a deviation from random behavior with significance ~1%. However the estimated significance is based on the assumption of large sample size. Since the motivation for using a method which does not require binning was the small size of the available sample, these estimates are subject to question. We have constructed simulated data sets which preserve the overall structure of the distribution of redshifts but are randomly distributed for the frequency interval tested by Burbidge and O'Dell. Spectral analysis of these data sets indicate that the significance estimates quoted by Burbidge and O'Dell may not be valid for the small samples investigated. Our analysis does not support claims by Burbidge (1968 Ap.J. Letters 154,

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