DISCUSSION ON THE PAPER BY **BLADES** ET AL (p.571)

Kundt : How did you determine the abundance of zinc in the z = 1.345 system ?

Blades : We determined the HI column density from our IUE spectrum and then deduced the zinc abundance from the respective columns.

Schilizzi : How do you know the sight line passes close to the centre of the galaxy which you claim gives rise to the z = 1.345 system ?

Blades : By an indirect method. The absorption system at z = 1.345 shows CAII. This species is known to have a restricted extent in our galaxy and in some nearby NGC galaxies - its scale height is about 1-2 kpc from the plane in our galaxy, and seems to extend only to $\sim$10 kpc in the plane for the NGC galaxies. If the 1.345 galaxy is similar (an admittedly mind-boggling assumption) to these nearby galaxies, then detection of CAII suggests that the sight-line passes near the centre of the intervening system.

Green : Have you compared the CIV to CII ratio in these absorption systems to that found in our galaxy ?

Blades : This is a major purpose of our work - it takes a lot of telescope time to obtain the required high resolution data for such comparisons and our work is not yet complete.

DISCUSSION ON THE PAPER BY **GONDHALEKAR & BROSCH** (p.575)

Malkan : As you know, I got blue high-resolution spectra with high signal/noise ratios, of 3 of the background QSO's you detected UV absorption in, at the void redshift. To very tight limits (e.g. 50 to 100 milliangstroms) I saw no corresponding CaII H and K absorption lines. However, you felt that CaII may not have been expected, given the apparent ionization of the gas.

Gondhalekar : I suspect the problem is the shear weakness of lines. We are looking at very small columns of gas and Lyα, SiIV and CIV are the strongest lines in the absorption spectrum. Not surprisingly these are the lines we detect.

Trimble : If this gas exists in isolation well away from any galaxy, stars, or other sources of ultraviolet radiation, what keeps the gas ionised ?

Gondhalekar : You will have to ask Martin Rees - and theorists on galaxy formation. I believe there is no problem in having ionized gas in voids.

G. Swarup and V. K. Kapahi (eds.), Quasars, 577–578.

Alloin : What is the signal to noise ratio in the continuum for this spectrum, and consequently, how confident are you about your line measurements ?

Gondhalekar : We only tried to identify lines which were stronger than 3σ. The rms noise was determined from regions of spectra free of known emission lines.

Wandel : In the case you do make a positive detection of absorption systems at the redshift of the voids, are you able to rule out the possibility that the absorbing material is actually at the edge of the void, and has a large velocity relative to the Hubble flow, as for example, in the Ostriker-Cowie explosive shells.

Gondhalekar : We need to look at a number of sightlines. If we find all lines at redshifts corresponding to the edges of void then we have a problem. The problem of Hubble flow is much more difficult; we need to determine the profiles of these lines - may be with ST.

Turnshek : I would simply point out that there are features to the red of your $L\alpha$ emission line which appear as strong as the absorption features you have proposed an identification for. With the IUE spectrum you would expect the signal-to-noise to be poorer in the blue. Since you would not expect the lines to the red of $L\alpha$ emission to be real, I doubt that the lines you have identified are real. Also, even if the absorption lines were real, I don't believe that you could even hope to determine column densities with data of that quality.

Gondhalekar : There is no problem in determining column densities. Of course, the accuracy of these column densities is not very high.

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