counts, normalized to a unit redshift interval, is 0.55 ± 0.20 and so we apparently have a significant inverse effect (at ~ 2 σ level).

(c) The velocity dispersion parameter

In order to compare our data with previous analyses of high resolution data, we selected 10 apparently unblended lines in the region $3.48 < z < 4.11$. Their mean redshift was $\bar{z} = 4.0$. These lines were then modelled by using non-linear least-squares to fit Voigt profiles. For these 10 lines we find $\overline{b} = 30.5 \pm 2.1$. This can be compared with the results of Carswell et al., 1984, for Q1101-264, and Atwood et al., 1985, for Q0420-388. For Q1101-264 $\overline{b} = 30.1 \pm 2.5$ for a sample of absorption lines with $\bar{z} = 2.0$ (this is derived from the complete sample rather than just for unblended lines; the absorption line number density is sufficiently low at $z = 2$ that this should not bias the result too much) and for Q0420-388 $\overline{b} = 30.5 \pm 2.0$ for a sample with $\bar{z} = 2.9$ (for unblended lines with $\log N_{HI} > 13.75$). Our preliminary check on the Doppler parameter at $z = 4$ therefore provides no evidence for redshift evolution in this quantity.

Metal Line Systems

From this high resolution CASPEC spectrum and a low resolution (10 Å FWHM) spectrum obtained by RFC, HCP and JKW at the AAT, we have discovered two metal containing systems.

(a) $z_{abs} = 3.392$

The most prominent system is evident from the CASPEC data alone. This is associated with the strong damped Lyα line at 5349 Å. Strong CIV absorption is seen at the same redshift in our low resolution data. Profile matching to this feature, which is probably the highest redshift candidate disk galaxy yet discovered, indicates that $N_{HI} = 3 \times 10^{21}$ cm^{-2}. The Voigt profile fitted to this feature is shown in Figure 2. At this early stage, we cannot say anything about metal abundances; many of the transitions of interest (e.g. CII λ 1334, SiII λ 1260, Si III λ 1206, SiIV λλ 1393, 1402) are embedded in the Lyα forest and a detailed profile analysis is required to obtain column densities (or limits).

(b) $z_{abs} = 4.133$

This system has a redshift 1,350 km s^{-1} greater than the Lyα emission line, and so presumably resides in the same cluster of galaxies as the QSO itself. Strong CIV absorption is seen in the low resolution spectrum, although the hydrogen column density is not particularly high (probably less than a few times 10^{17} cm^{-2}). This feature is not seen in the high resolution data as it is outside the wavelength range. The higher order Lyman lines are present in the CASPEC data and they should provide an accurate column density estimate. Since this object evidently sits fairly close to the QSO, we might expect the gas to be highly ionized, and so we searched for OVI absorption. This is a doublet with rest frame wavelengths 1031.9 and 1037.6 Å. The 1031 line appears to be present but this is unfortunately ambiguous since the 1037 line is blended with the damped Lyα line.

We expect the full analysis of these data to take some time and that the results will supply new and valuable information on the nature of the Lyα clouds at the highest redshift so far available. Later this year, we aim to collect more CASPEC data on the spectrum of Q0000-26, covering wavelengths longward of the Lyα emission line. These will cover many of the metal line transitions associated with the two systems discovered and will enable us to study the abundances and ionization conditions at this early epoch.

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Remote Observing: Nine Days in Garching

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As announced by G. Raffi in the *Messenger* No. 49 and confirmed by P. François in the *Messenger* No. 50, the CES spectrograph equipped with CCD (using the CAT telescope) can now be operated by means of remote control from Garching. I had the chance to be the first visiting observer with these instruments in Garching, and was asked to write down my impressions for the readers of the *Messenger.*

Before leaving my home institute, I was warned by several colleagues who feared that remote control was an additional step toward a practice of observational astronomy where most of the romantic side of the job has gone away. My answer was that an observation run from Garching allowed me to stay a few days longer with my newly born son, and that there was some romanticism there too. I could also have replied how fascinating an experience it is to be in touch with one of the amazing technical developments at ESO. It surely is a remarkable achievement that, so early in the development of the remote control technique, observations could be carried out from Garching with essentially the same efficiency as at La Silla, an achievement for which G. Raffi, G. Kraus, and M. Ziebell deserve to be congratulated. My warmest thanks also go to the numerous colleagues both in La Silla and in Garching who helped in rendering the operations as efficient as possible.

My programme was an easy one for remote control, since I have been using the same spectral range throughout, watching variations of the profile of the SiIII line at 4552 Å in some bright Beta

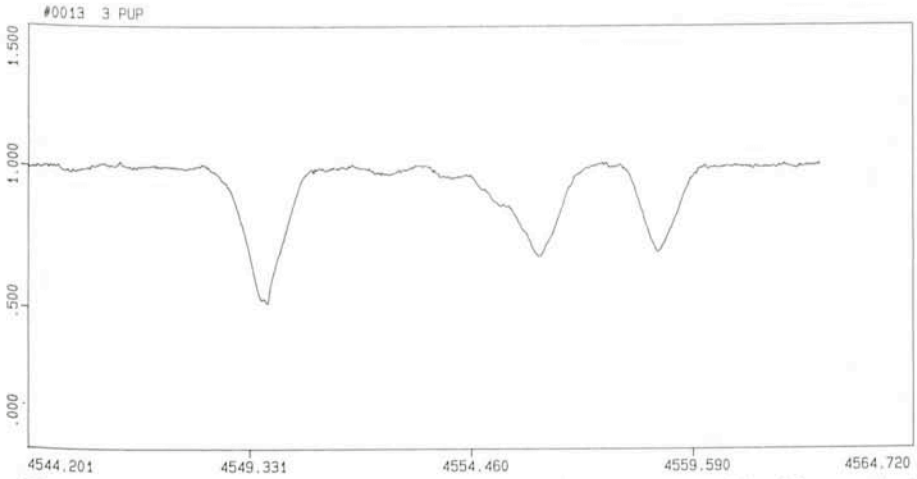

Figure 1: *Some of the stronger FeII, TiII, and CrII lines in the spectrum of the A2-supergiant 3 Puppis.*

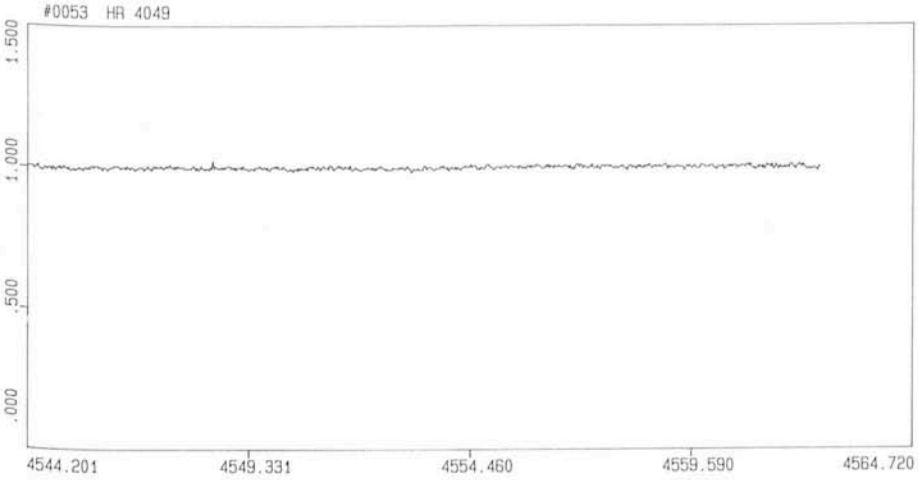

Figure 2: *The same spectral region as in Figure 1, but for the peculiar early-A supergiant HR 4049.*

Cephei stars. I could not withstand the temptation to spend some time on my favourite object, the peculiar early supergiant HR 4049. As explained in the *Messenger* 49, HR 4049 is not a normal massive supergiant, but probably an old low-mass star that is terminating its evolution from the red-giant stage toward the planetary-nebula stage. From previous optical spectra, it was clear that HR 4049 is a very metal-deficient object. It happens that the spectral region I observed contains some of the strongest lines of the iron-peak elements iron, titanium and chromium in the A2Ia supergiant standard Alpha Cygni. In Figures 1 and 2 the spectrum of HR 4049 (A0Ip) can be compared with that of another A-supergiant surrounded by a dust shell, 3 Puppis (A2Iabe). One does not have to undertake tedious calculations in order to know that the deficiency of HR 4049 is particularly severe! This star may also become an object for observers who are not interested in the subject of late stages of stellar evolution, but are just looking for early-type stars that are suitable for observations of stellar flat fields . . .

My run was rather long, nine nights, and maybe too long for remote control observations. The weather was excellent throughout at La Silla, but not so in Garching. After a few nights, it became a frustrating experience not to wake up having access to the familiar sunshine on the mountain, but instead watching the darkness of the northern winter with its fog so typical for November. This was entirely my problem, of course, since remote control is not primarily designed for such long runs. Instead, the technique is most promising for the possibility it offers to carry out shorter programmes, that presently aren't scheduled so often at the CAT, in an efficient and cost-saving way.

La Silla Snowstorm

Skiing enthousiasts among European astronomers – who have suffered because of lack of snow in the beginning of this winter – may be interested in these pictures by K. Seidensticker, obtained in late July 1987. While tall snow-drifts block the inner yard of the La Silla Hotel, a snow plough works its way along the roads under a splendid blue sky.