Such variations could provide evidence for the existence of compact dimensions, at least and refs. therein). The use of QSO spectra to search for an Recent measurements of absorption lines in high resolution QSO spectra suggest the vari- ation of the fine structure constant others) predict the dependence of fundamental physical constants on energy, a prediction measured by Griesmann & Kling (2000), the best available up to date. The AD method second VLT Unit (Kueyen). Twelve exposures of 3600 and 5400 seconds were made using the dichroic settings: Dic1 (B3460 – 1.8393 A) and Dic2 (R8600 – 1.8377 A) in a QSO sample over the redshift range 0.145 – 2. The leftmost line in both absorptions correspond to the blended and Si IV systems were identified and accurate measurements of wavelengths over the redshift range 1.5513 – 1.8377 are plotted in Figure 5. The selection of appropriate central wavelengths was based on the profile given by the system C IV 1 = 1.5513 (Figure 1) where the line fitting provided wavelength uncertainties of \( \sigma_c = 0.0015 \) and \( \sigma_q = 0.0021 \). Because, somehow, a complex velocity structure is present in all the cases, the most symmetric shapes were selected qualitatively and the corresponding \( \sigma_c \) and \( \sigma_q \) values served as quantitative criterion to ensure the variability of the doublet systems available in a single QSO spectrum in

\[ \sigma_c = 0.0015 \quad \text{and} \quad \sigma_q = 0.0021. \]

The Alkali Doublet Method

Concluding

Table 1. \( \Delta \)c and \( \Delta \)q values for measuring C IV and Si IV wavelengths.

The results corresponding to Si IV are more accurate than those for C IV and it is evident

\[ \Delta \text{c}(\text{Si IV}) = 0.0008 \quad \text{and} \quad \Delta \text{q}(\text{Si IV}) = 0.0013. \]

The absorptions are located in the near UV band, aproximately from 3100 – 10282 Å, shows a complicated profile unfortunately contaminated,
Table 1:

Fig. 1.—

Fig. 2.—

Fig. 3.—

Fig. 4.—

Fig. 5.—

Fig. 6.—