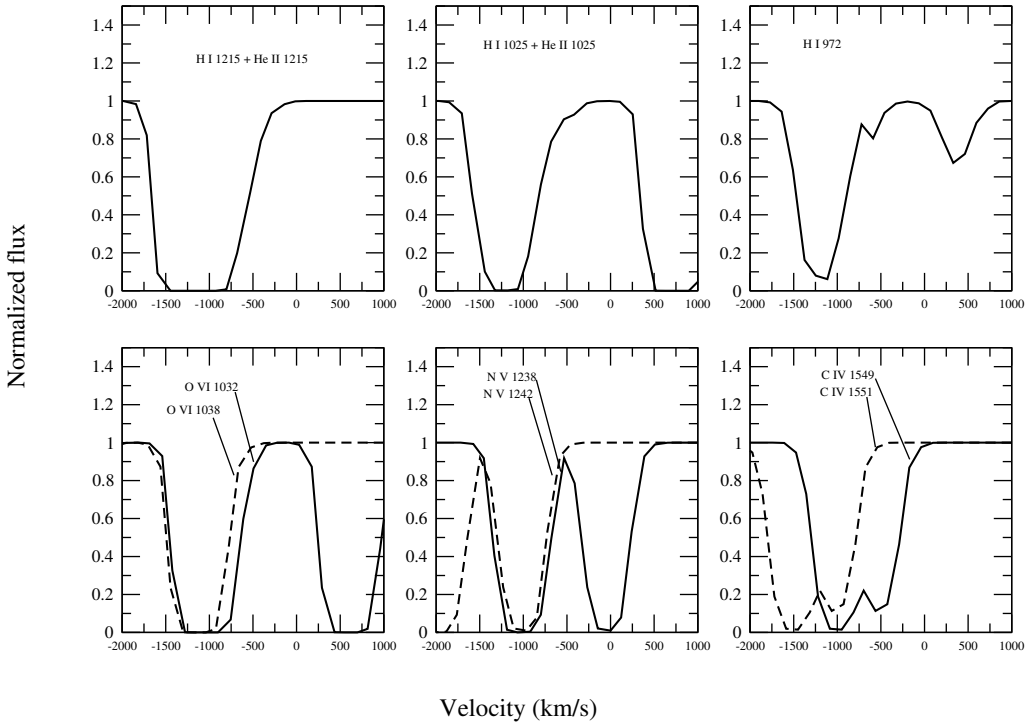

Fig. 11. Predicted UV spectrum by model B (in velocity space). These absorption lines are formed by the faster clouds (or by those at lower ionization parameters) of model B, i.e., $\log \xi = 0.12, -0.65$. Some of the velocities displayed by these lines are shared by lines coming from the X-ray band. For transforming to velocity space, we have taken the shorter rest-wavelength of the doublet (solid line), and also the longer rest-wavelength of the doublet (dashed line).

detectable in the UV band of the spectrum. Figure 11 shows the spectra of several UV lines as a function of radial velocity with respect to the systemic one. At the top of the figure we present the Lyα blended with the He II λ1215 line (upper left) which yields a feature centered at $\sim$−1300 km s^{-1}. Also, an absorption feature is formed with the Lyβ and He II λ1025 lines (upper center) with center at $\sim$−1200 km s^{-1}, and the line Lyγ (upper right) with a velocity $\sim$−1100 km s^{-1}. At the bottom of the figure we plot the spectrum of three important doublets (C IV $\lambda\lambda$1548.2, 1550.8, N V $\lambda\lambda$1238.8, 1242.8, and O VI $\lambda\lambda$1032, 1038). The solid line depicts the velocity spectra constructed taking the shorter wavelength of the doublet. The spectra shown as dashed lines were obtained taking the longer wavelength. One can see the similarity between the velocities predicted by our model and the high-velocity components (1, 4 and likely 3) seen in the UV spectrum of NGC 3783 and other Seyfert 1 galaxies (for example NGC 5548). This is similar to the conclusion reached by Gabel et al. (2005), based on Kaspi et al. (2002) and Gabel et al. (2003), where all X-ray lines having sufficiently high resolution and S/N were found to span the radial velocities of the three UV kinematic components (see also next section). These are predictions which arise naturally from our model because we are modeling the wind self-consistently with a complete treatment of radiative processes in all wavelengths. In our models these UV features as well as the long wavelength absorption lines in the X-ray band, are produced by the low ionization parameter part of the flow (e.g., $\log \xi = 0.12, -1.13$ from Figure 6 lower right panel). This demonstrates that the same absorber can produce X-ray and UV lines with similar velocities. Figure 12 shows the kinematic relationship between the X-ray and the UV absorbers. The model has been shifted (up) for clarity. Here we show the O VIII λ18.969 and the doublet O VI $\lambda\lambda$1032, 1038 (with respect to the shorter wavelength). For comparison we plot the histogram data of the 900 ks of NGC 3783. We see that our model is capable of simultaneously producing X-ray and UV absorption lines with similar velocities around $\sim$1000 km s^{-1}, as it has been suggested from UV data (Gabel et al. 2003).