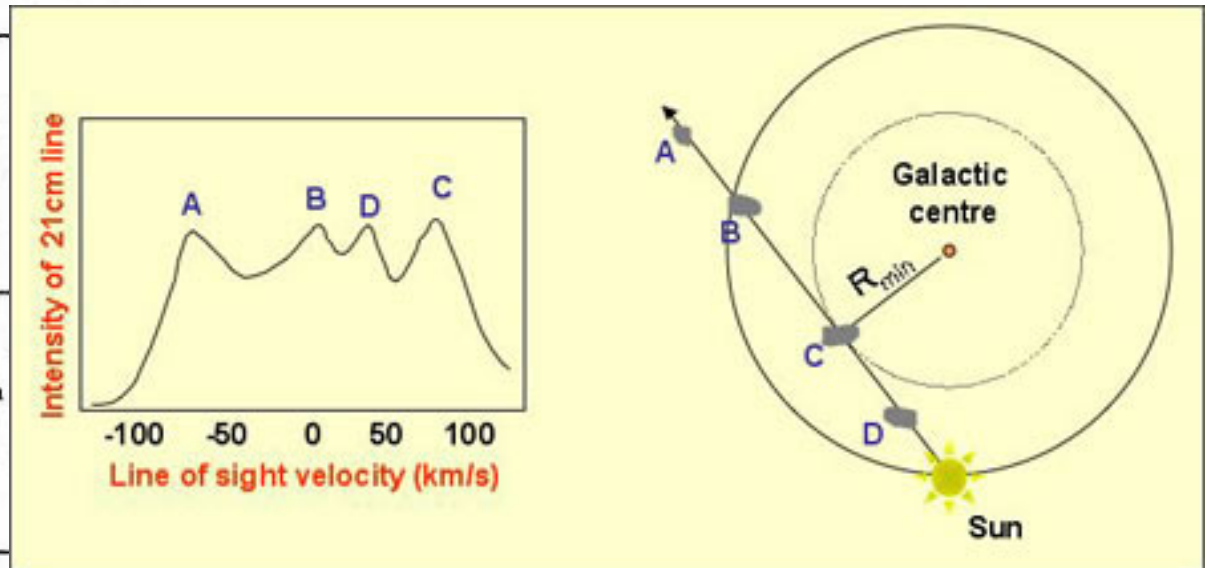
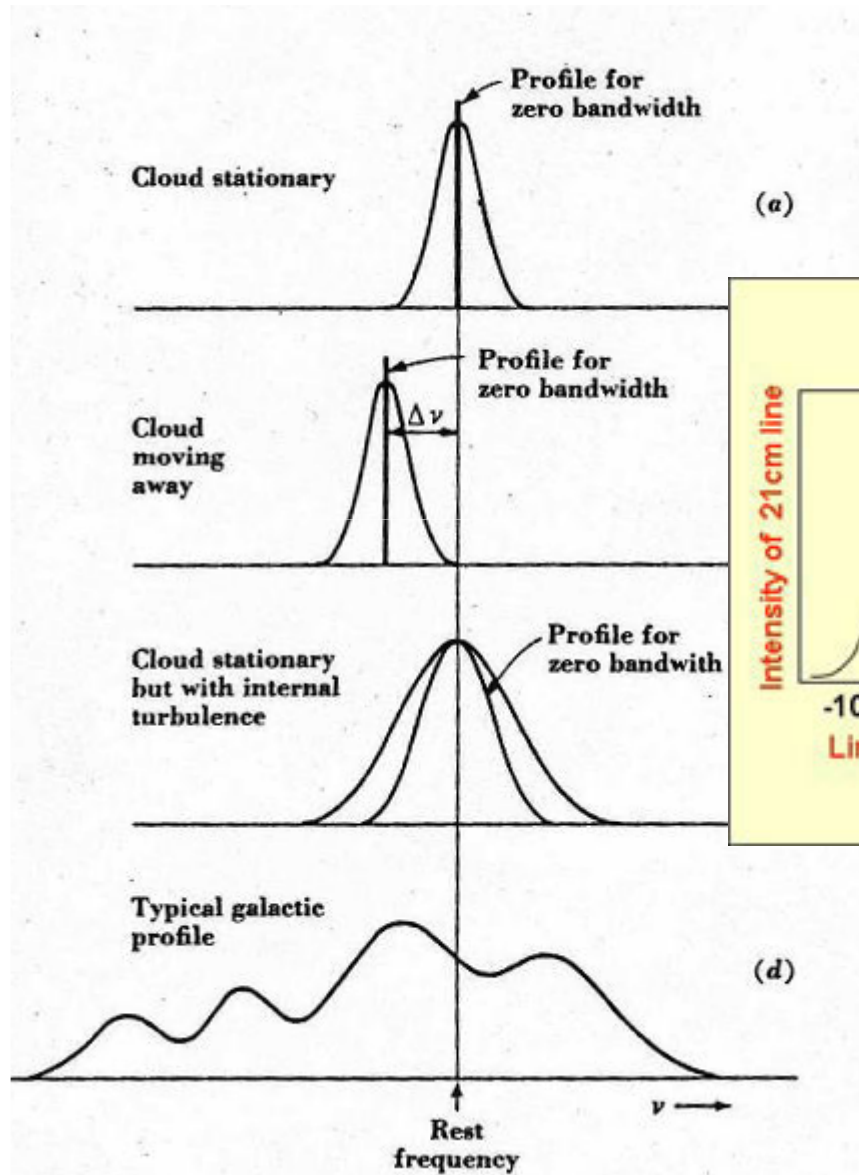
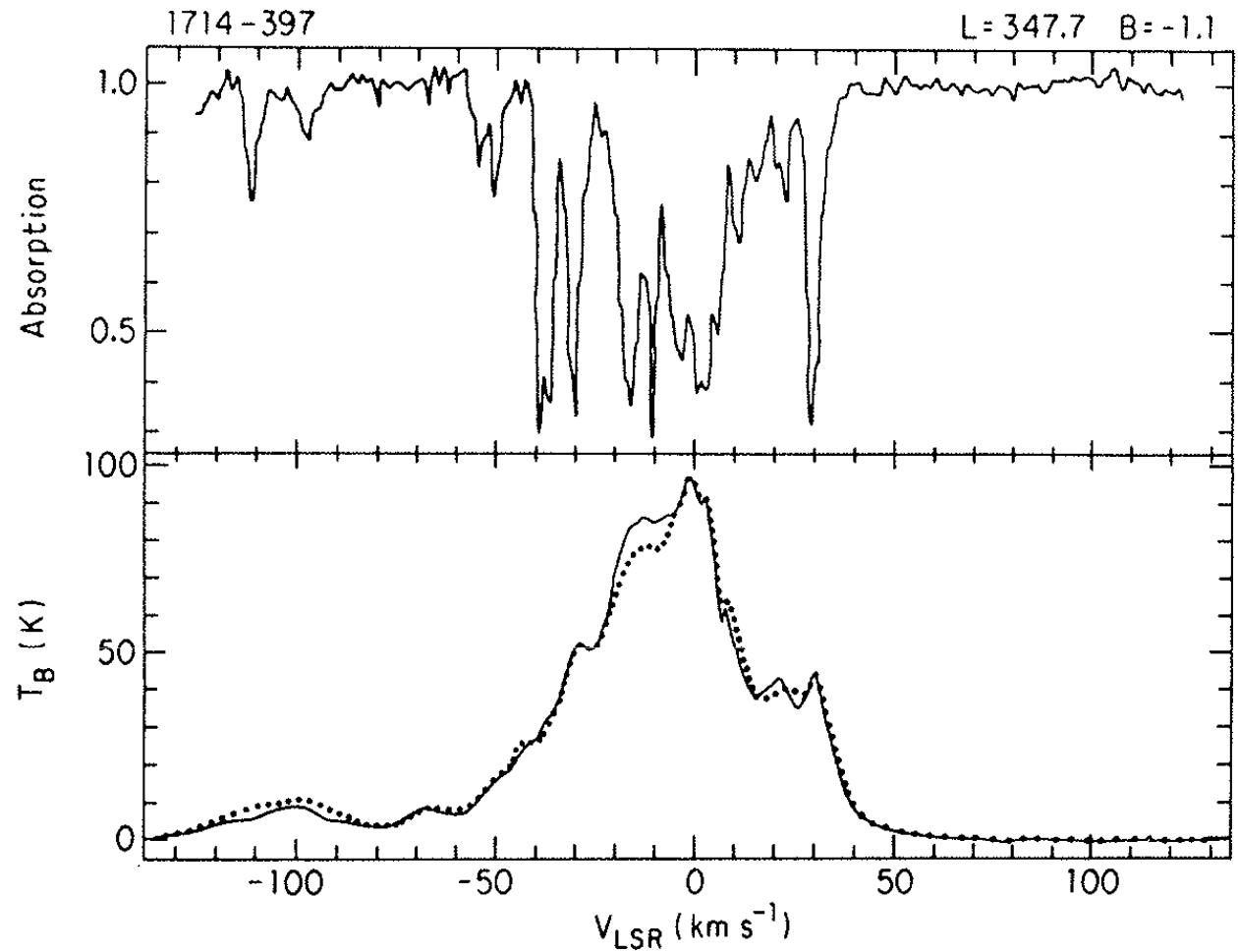


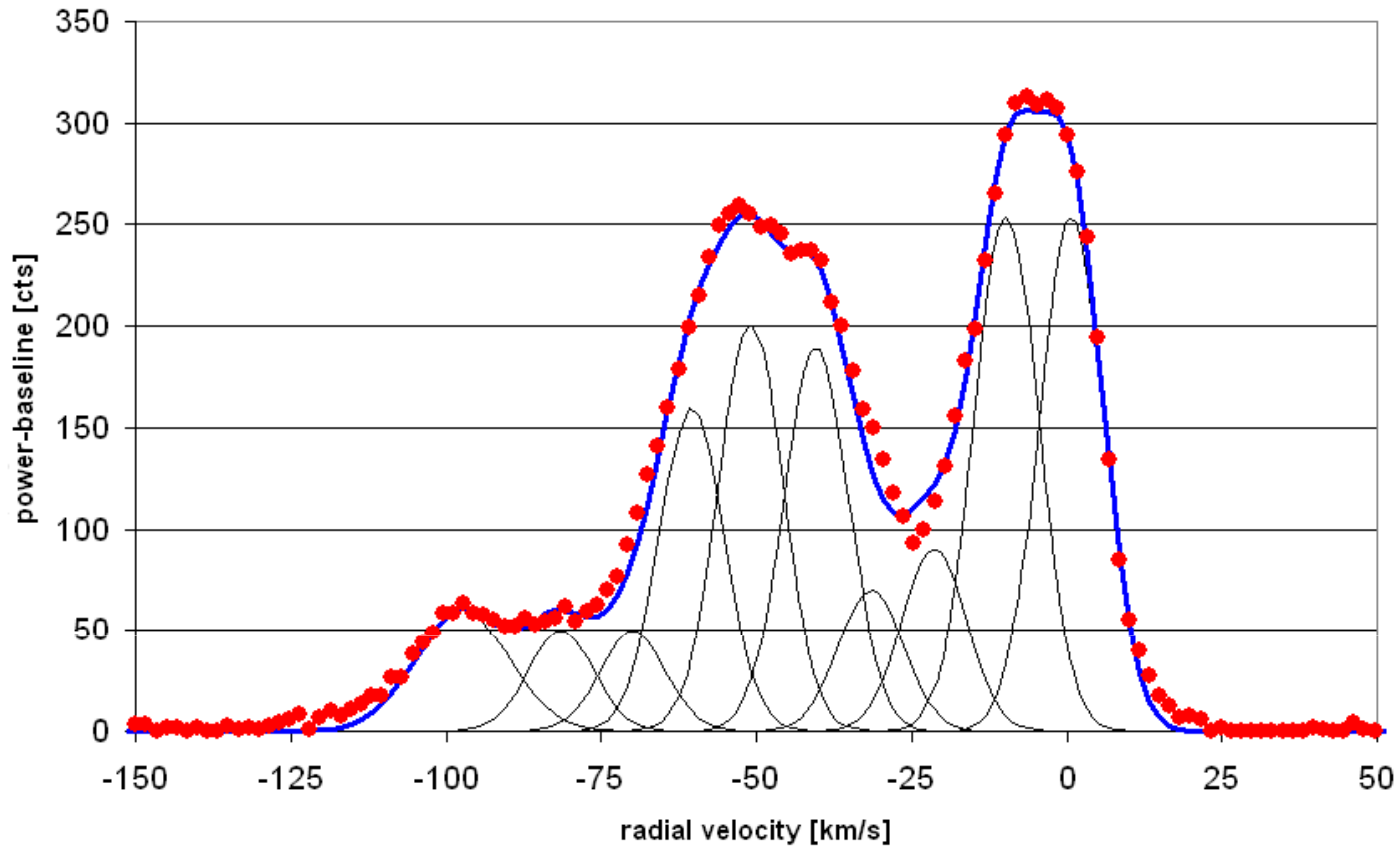
21 cm line profiles



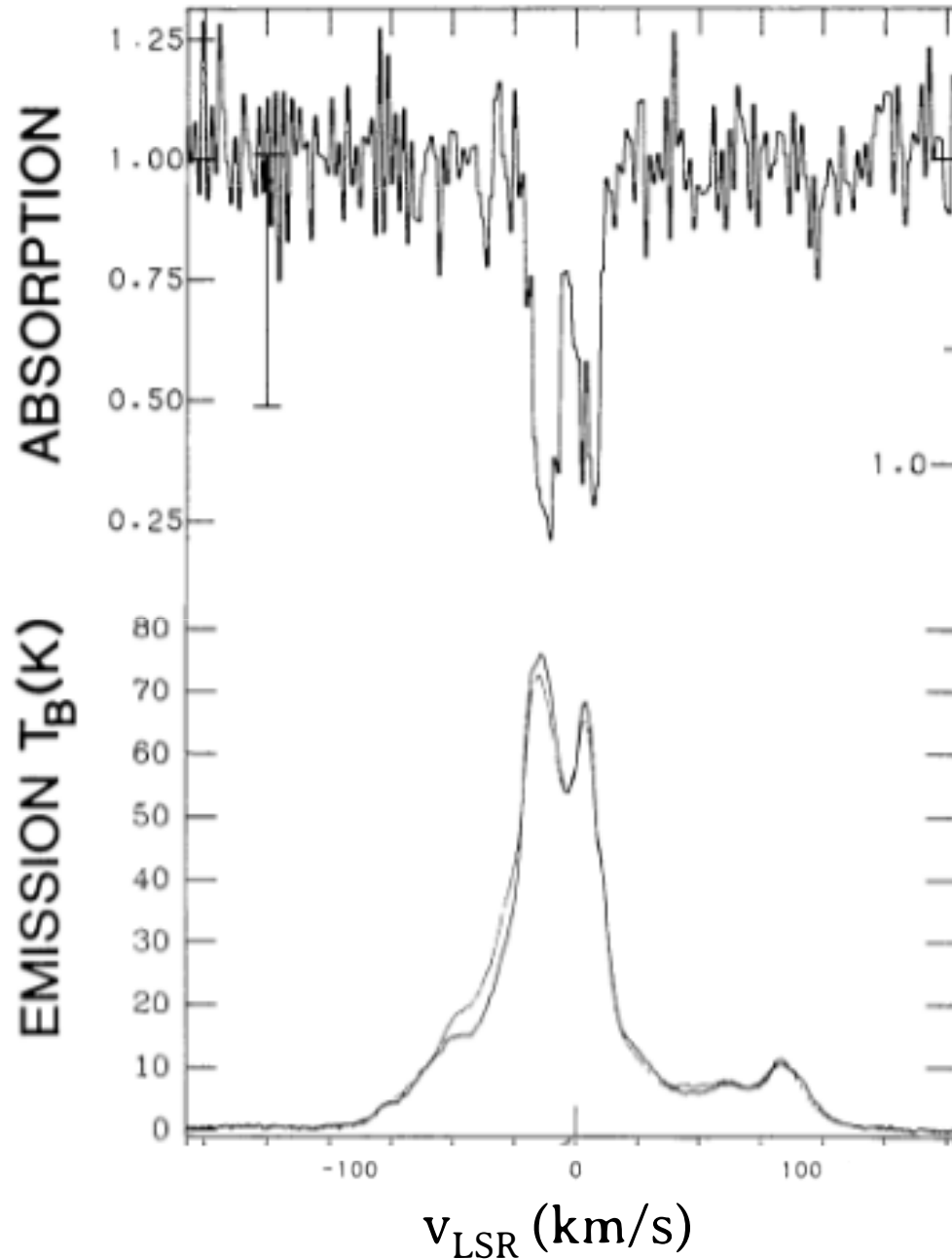


The HI 21 cm absorption and emission spectra in the ISM towards the source 1714-397, Dickey et al. 1983, ApJS

Each peak in the 21 cm profile corresponds to a different cloud. If they are in the disk of our Galaxy, their velocities are correlated with their distance from us. The 21 cm profile we observe is a combination of many components.



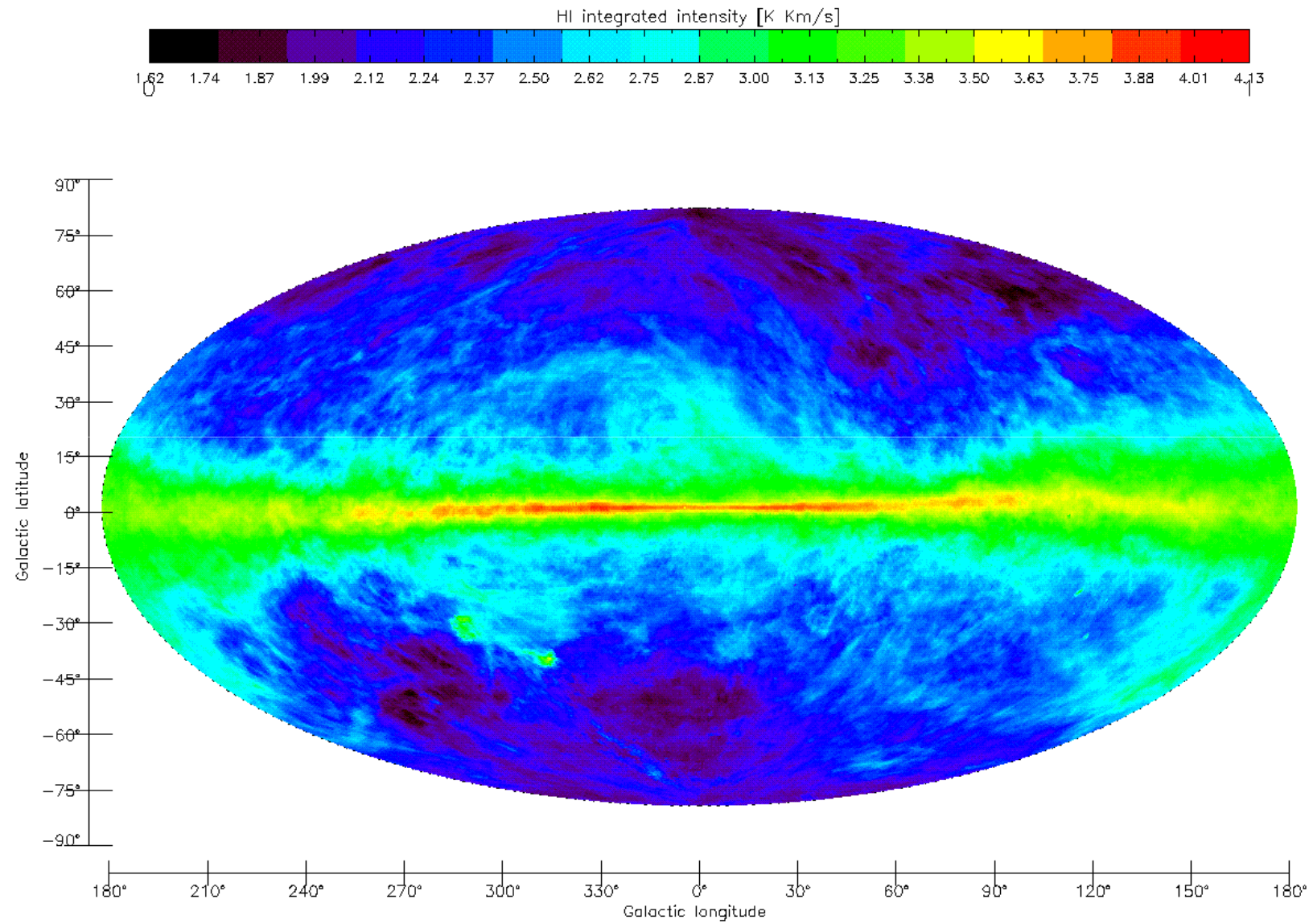
A schematic of the 21 cm emission profiles. A given line of sight would intercept many H I clouds. The final spectrum will be a blending of the H I emission from all the clouds sorted by their relative velocity with respect to us.



*The HI 21cm absorption
and emission spectra in
the ISM towards the
source 1705-353,
Dickey et al. 1983, ApJS*

**Why is the emission
intensity given in
temperature units?**

H I (21 cm) Galactic Survey



Kalberla et al. 2005 / LAB survey

Galactic High Velocity clouds are also routinely studied in 21 cm emission. The population of high velocity gas is more than what is shown in the figure below. H I 21 cm radio observations are sensitive to gas cloud with H I column density $N(\text{H I}) > 10^{18} \text{ cm}^{-2}$

