Photoevaporation of protoplanetary discs by XUV stellar radiation

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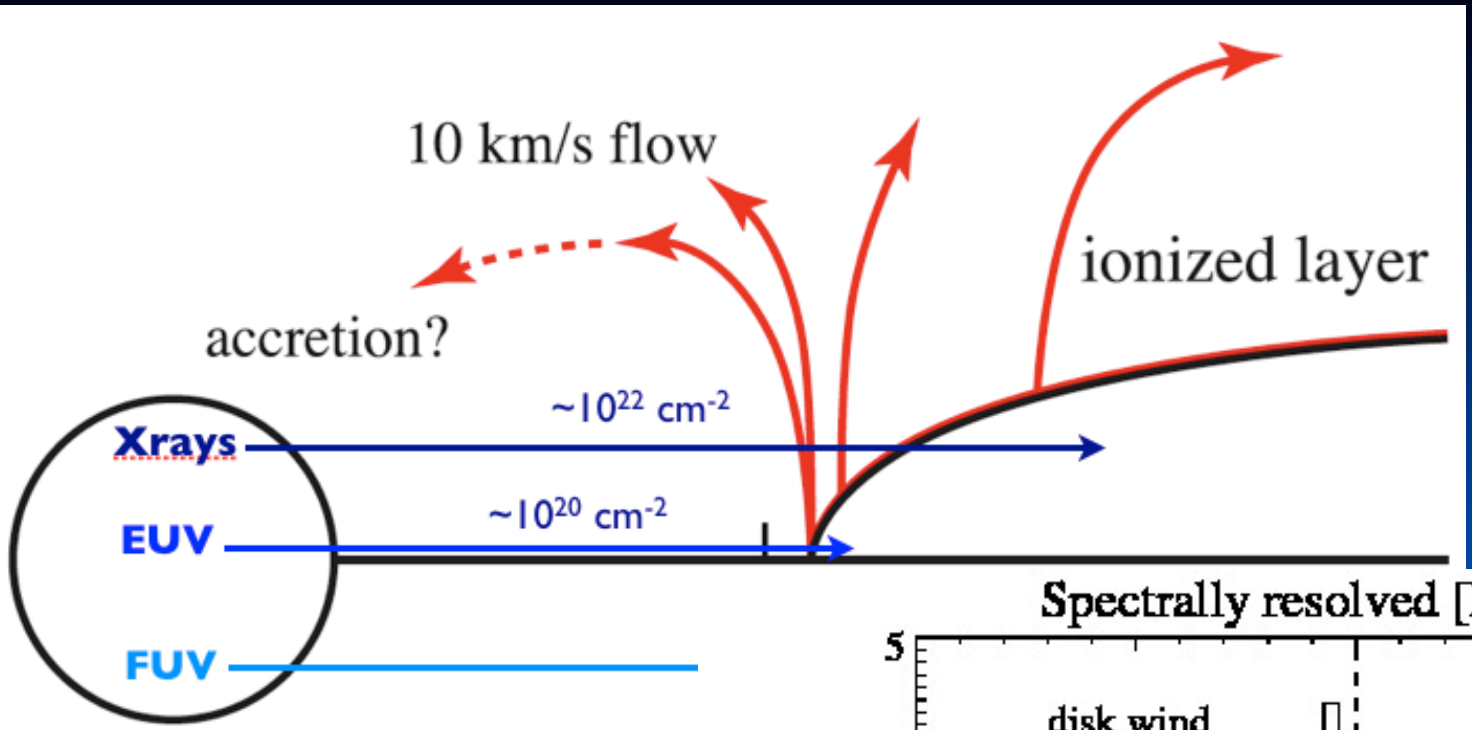
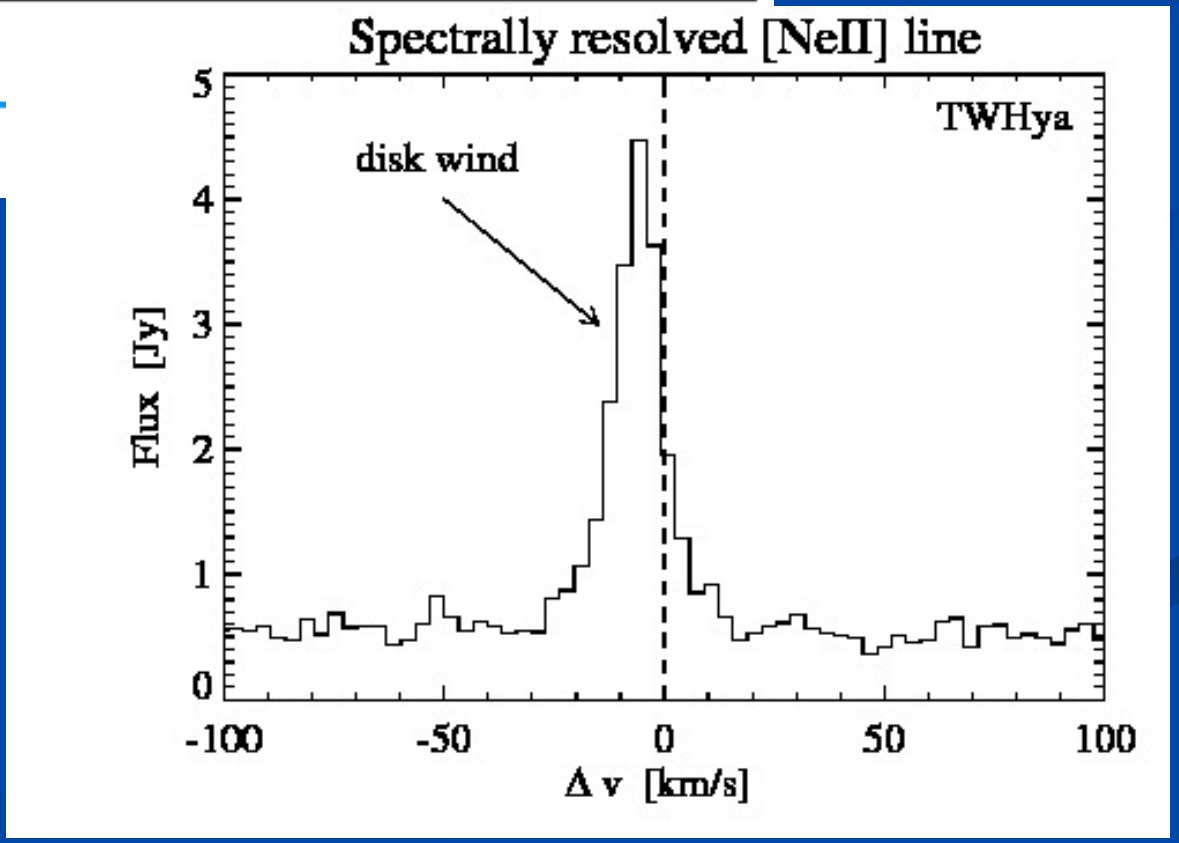
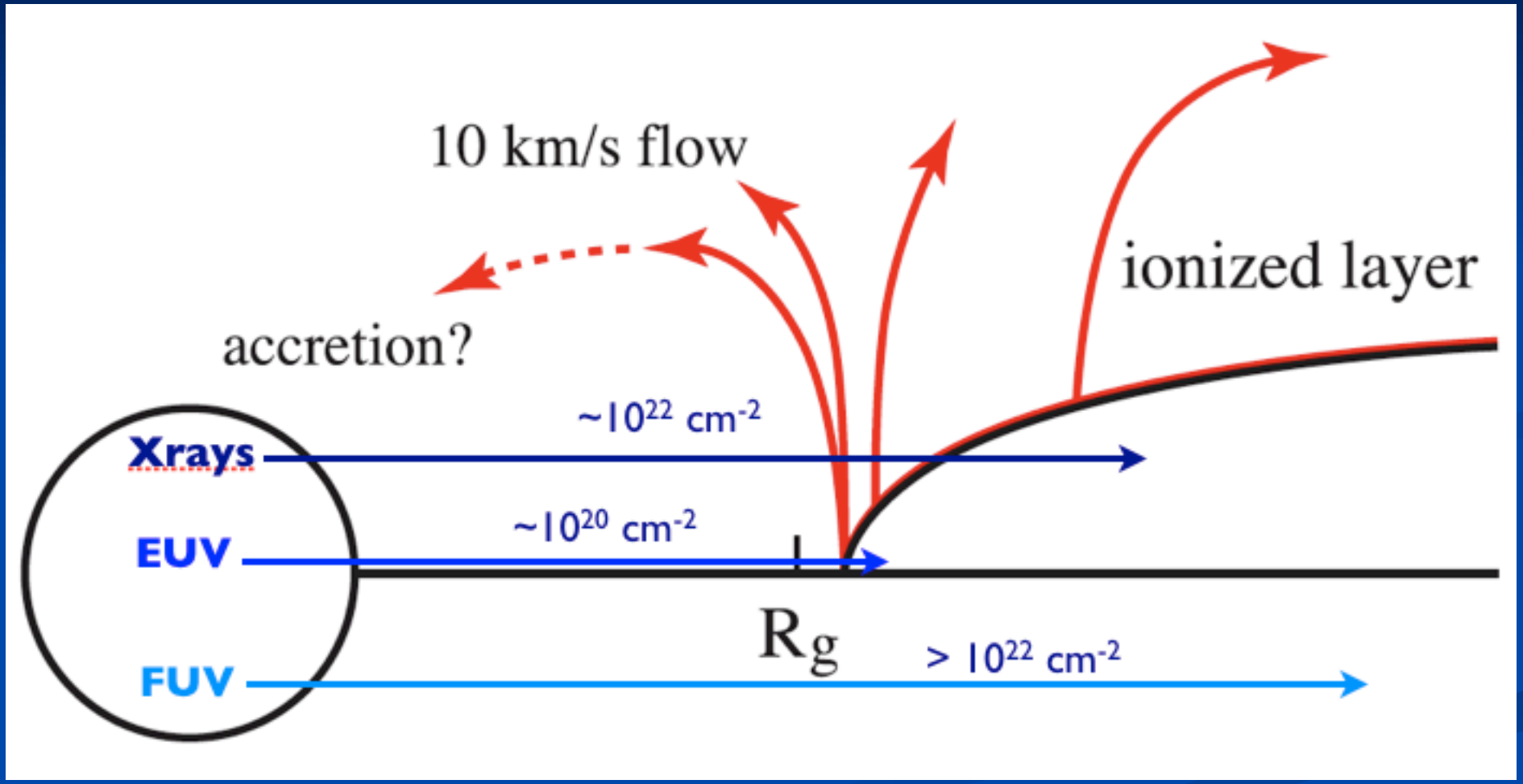




Pascucci & Sterzik (2009)

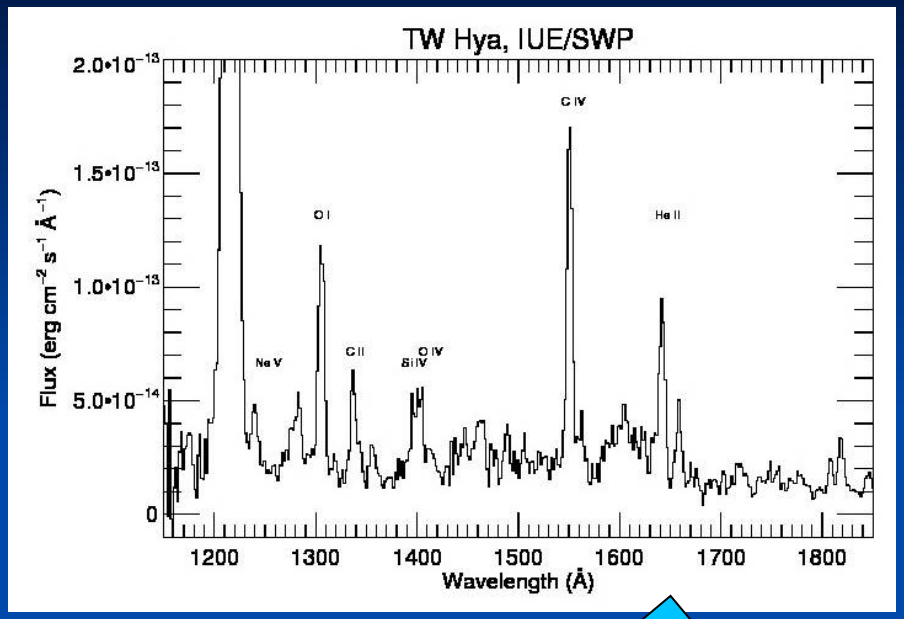
Sacco et al. (2012)

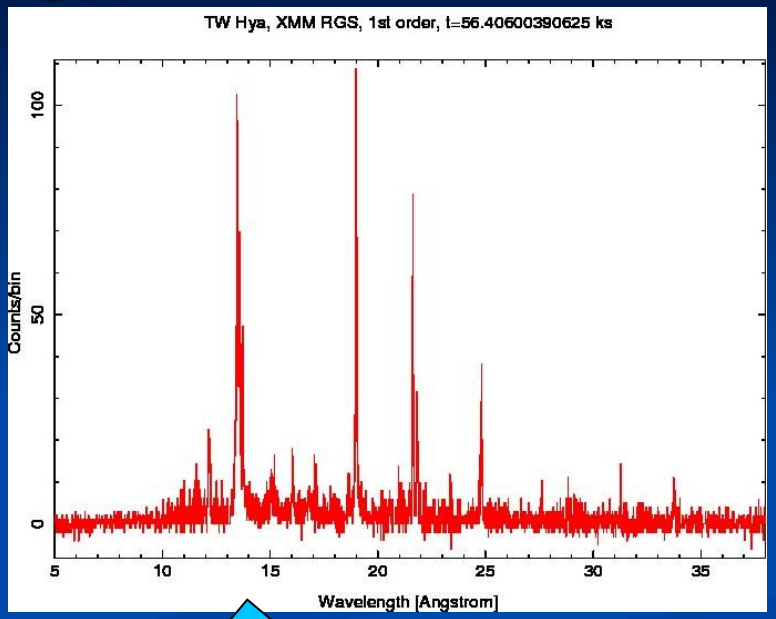
Disc photoevaporation



Photons with less than 912 Å are absorbed by Hydrogen. X-rays (1-100 Å) penetrate deeper than EUV (100-912 Å). Adapted from Alexander et al. (2006).

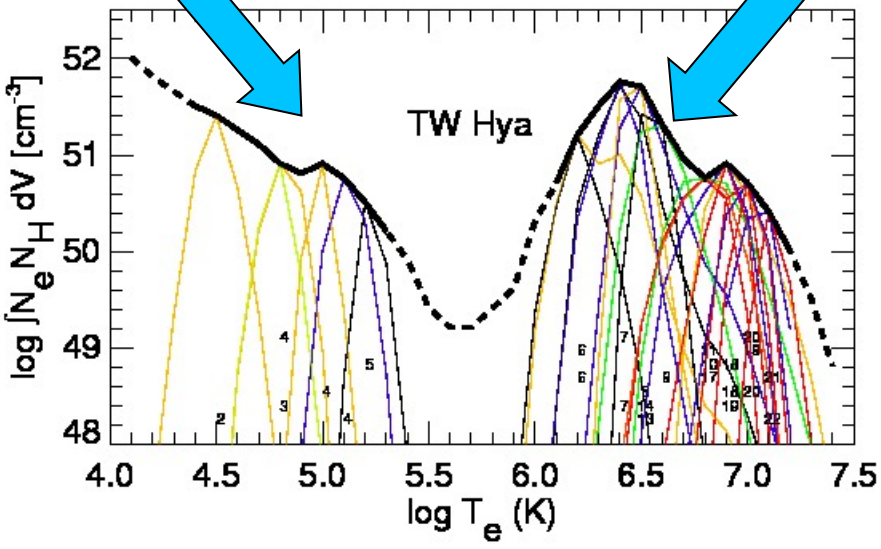
A coronal model



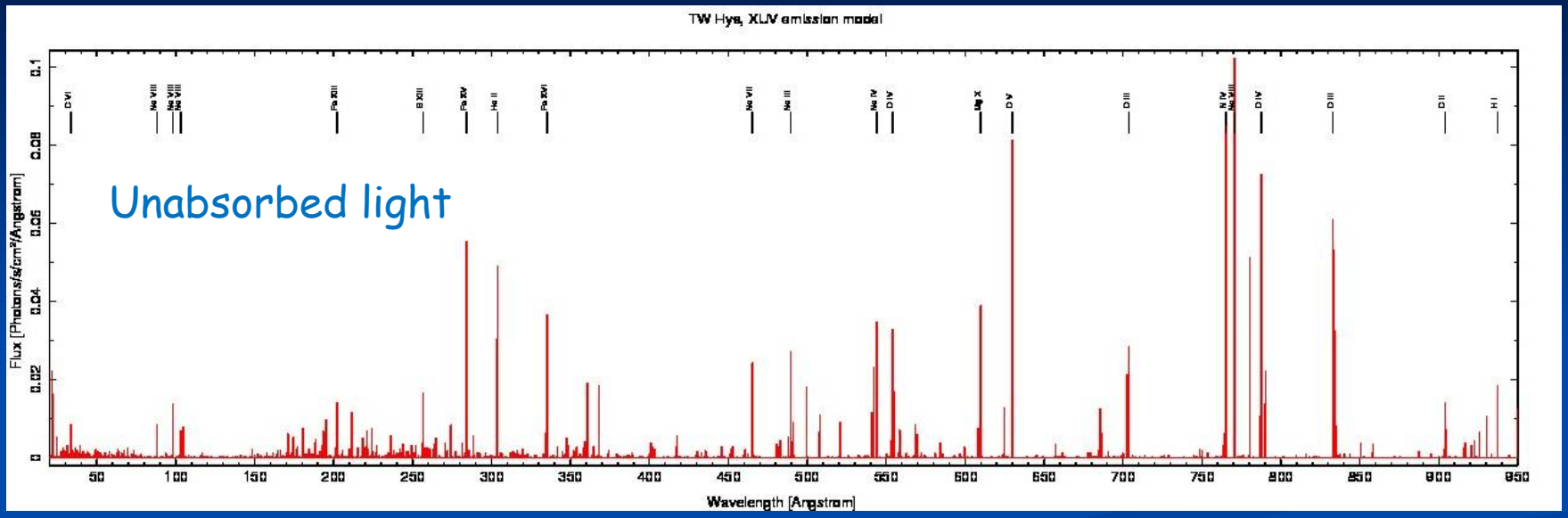


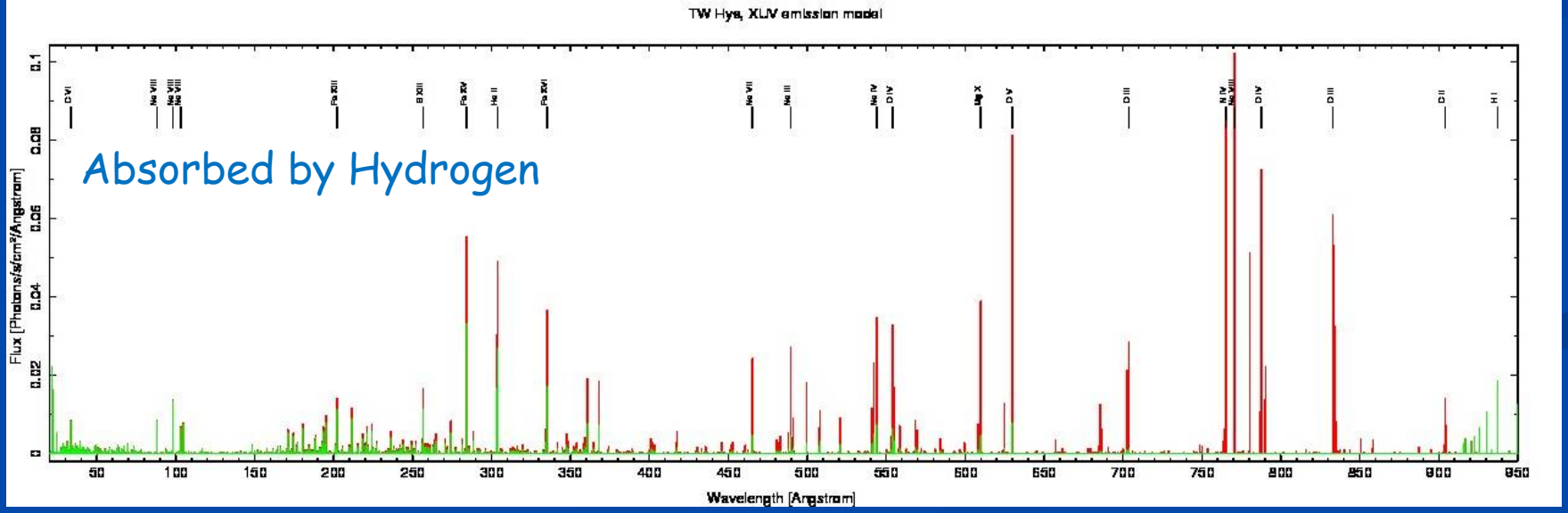
UV lines

X-rays lines

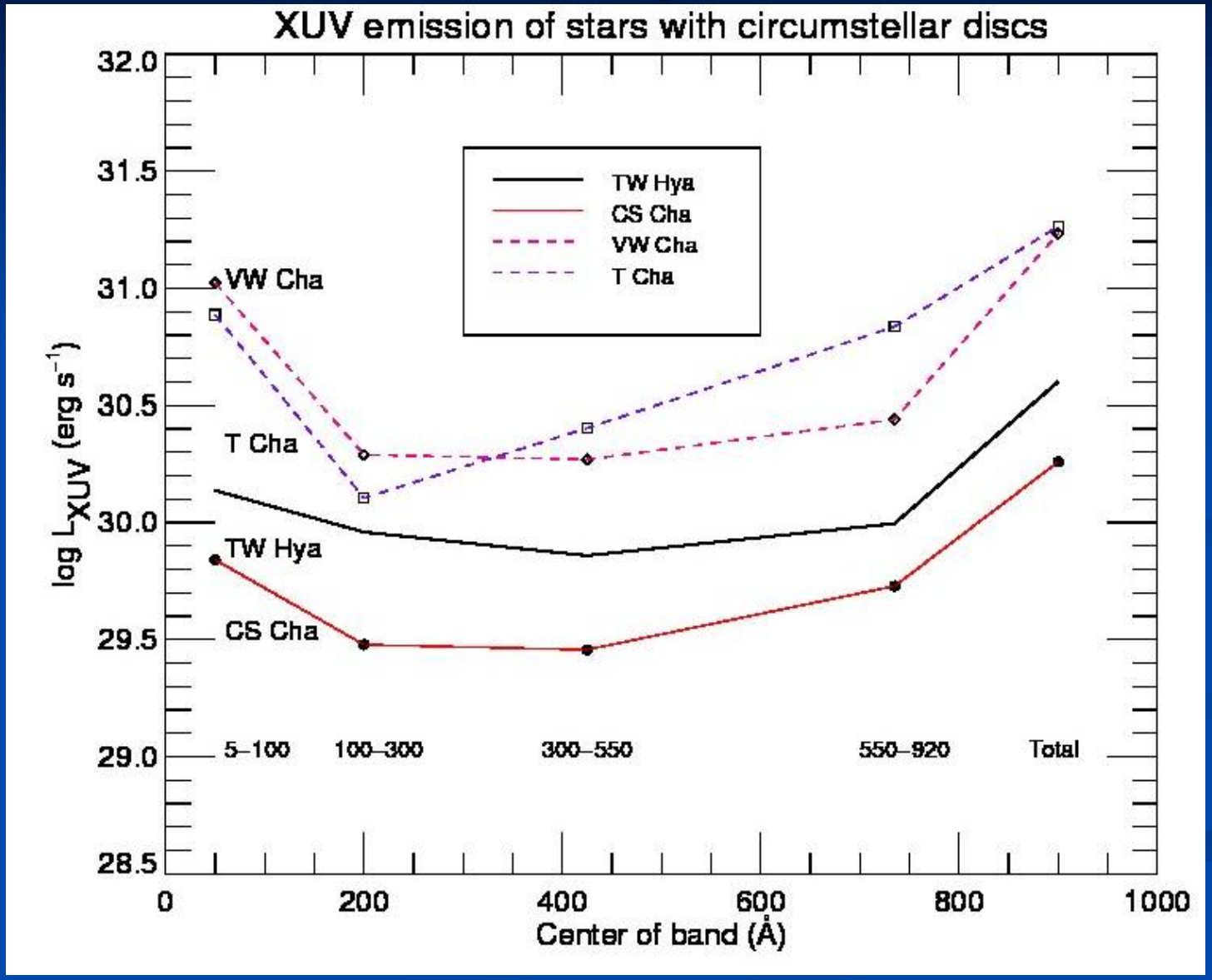


Synthetic spectrum



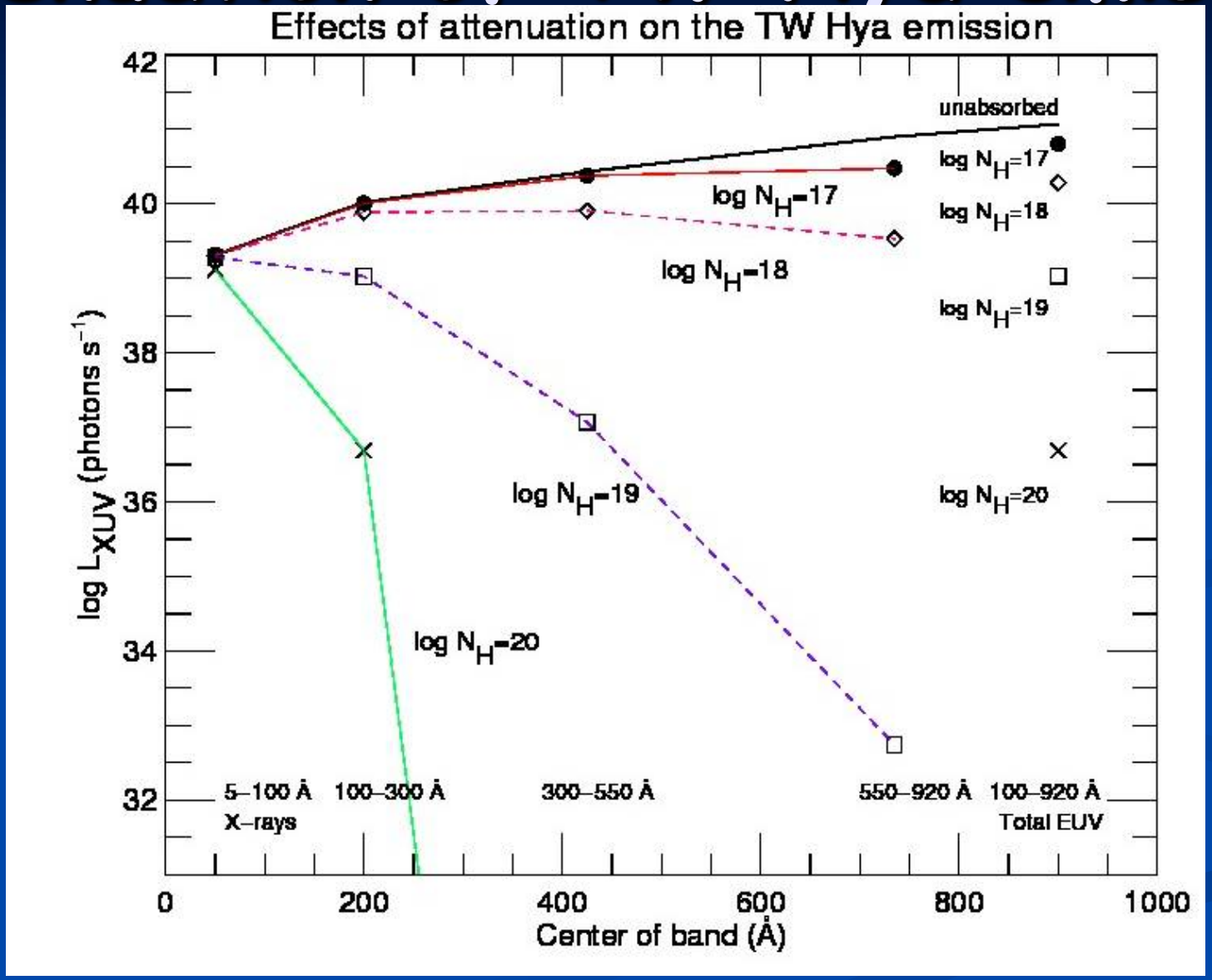


XUV emission of T Tau stars



Ages: 2- 15 Myr. [Ne II] evaporation detected by Pascucci et al. (2009)

Attenuation of TW Hya emission



10^{40} photons/s are needed to explain radio and [Ne II] emission (Pascucci + 2012, Pascucci & Sterzik 2009). Sanz-Forcada et al. (in prep.)

Conclusions

- The material between TW Hay and its disc must be ionized, or distributed in clumps (very low attenuation).
- A proper model of the corona and transition region is necessary to calculate the stellar ionizing flux.