

The Spectra of Stars

1

The absorption spectra of stars show great variety



Sirius (α Canis Majoris)



Strong *hydrogen* absorption lines



Arcturus (α Boötis)



Strong *calcium* absorption lines

2

Early spectral classification: assign a letter based on strength of hydrogen absorption lines (A=strongest, O=weakest):

- Sirius: strong H lines \rightarrow A type
- Arcturus: weak H lines \rightarrow K type

3

Annie Jump Canon (1863-1941): differences in absorption line strengths are not due to differences in composition, but rather to differences in *temperature*



4

Canon re-organized the A-O sequence into temperature order, eliminating some letters. This led to the modern (Harvard) system of spectral classes: O, B, A, F, G, K, M

