



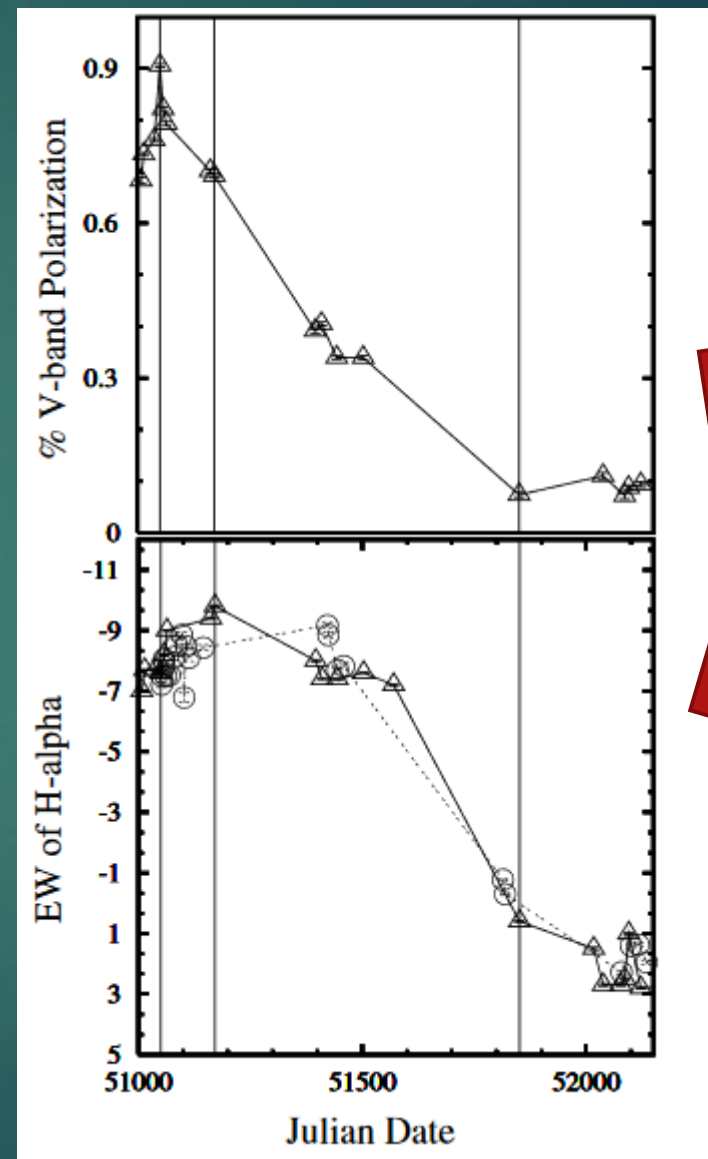
Evolution of Be star disks

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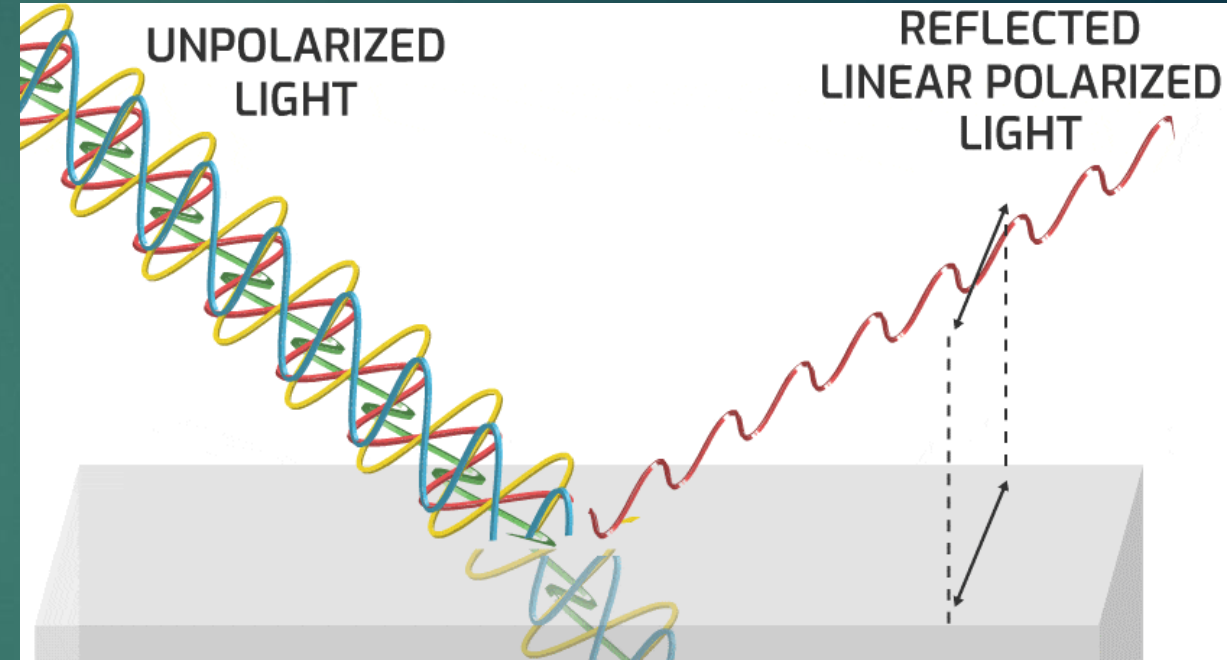
Our Goal

- ▶ Be able to characterize the change in disk size over time for multiple stars
 - ▶ Time series analysis of light from clusters that have B-type stars
- ▶ Create a catalog of the measurements needed to analyze any given star
 - ▶ Astrometric measurements - $H\alpha$ (inner region)
 - ▶ Polarization (outer region)



Polarization

- ▶ The direction in which the electric field oscillates
- ▶ Unpolarized light occurs in all rotations
- ▶ Can be parametrized in four vectors ("Stokes Parameters")
 - ▶ I , Q , U , and V
 - ▶ Specify the phase and polarization of electric field waves
- ▶ Percent polarization
- ▶ Lets us probe the *outer* part of the disk to gather information about its properties
 - ▶ Materials in the disk
 - ▶ Disk angle



Interstellar Polarization

- ▶ Biggest obstacle is isolating polarization from the disk
- ▶ 3 Major components to polarization
 - ▶ Disk - good
 - ▶ Space (Interstellar Polarization) - bad
 - ▶ Telescope itself – meh
- ▶ For our measurements to be meaningful we need the polarization from disk only
- ▶ Stars in the same cluster have similar space to travel through (same Interstellar polarization)



Future Work

- ▶ Once our catalog of ISP is complete opportunity to split
- ▶ Cluster based
 - ▶ Find ISP to different clusters
 - ▶ Compare ISP of different clusters
- ▶ Individual star based
 - ▶ Find polarization of stars of a given cluster
 - ▶ Compare change in disk size of many stars





Questions?