

Protoplanetary Disks of Binary Systems in Orion

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TTauri Binaries in Orion

G05

Star Formation in Binaries



Star Formation in Binaries

→ Binaries are the main outcome of star formation

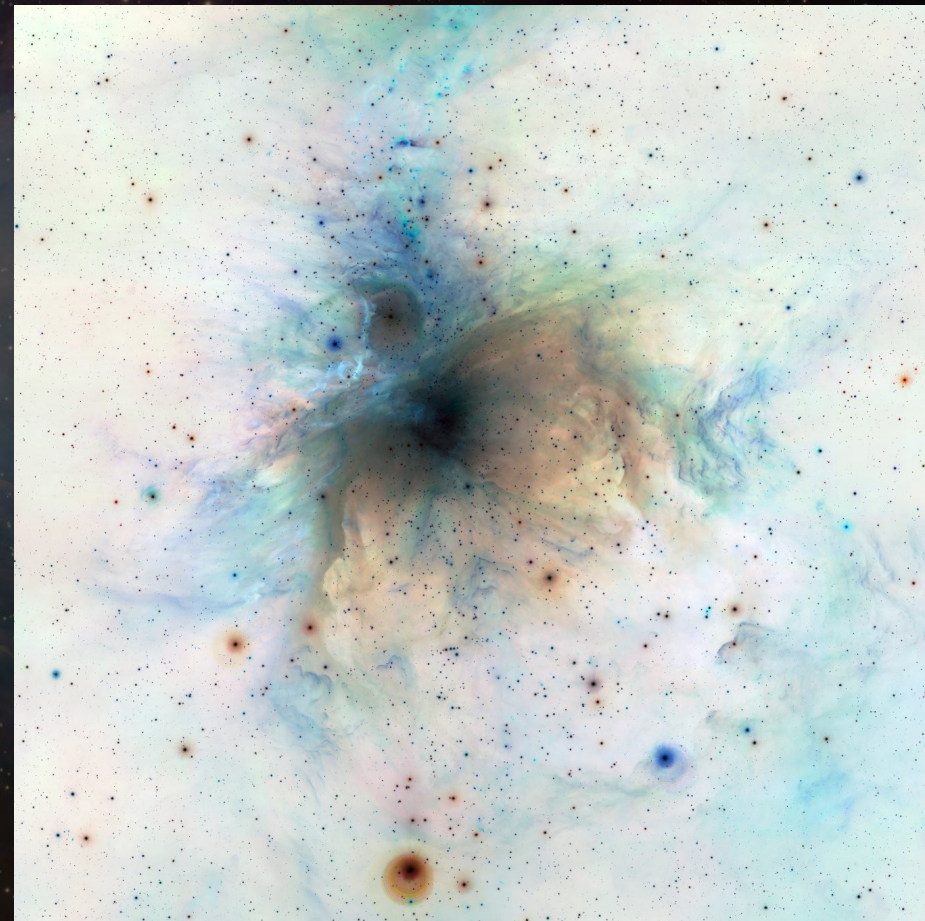
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Star Formation in Binaries

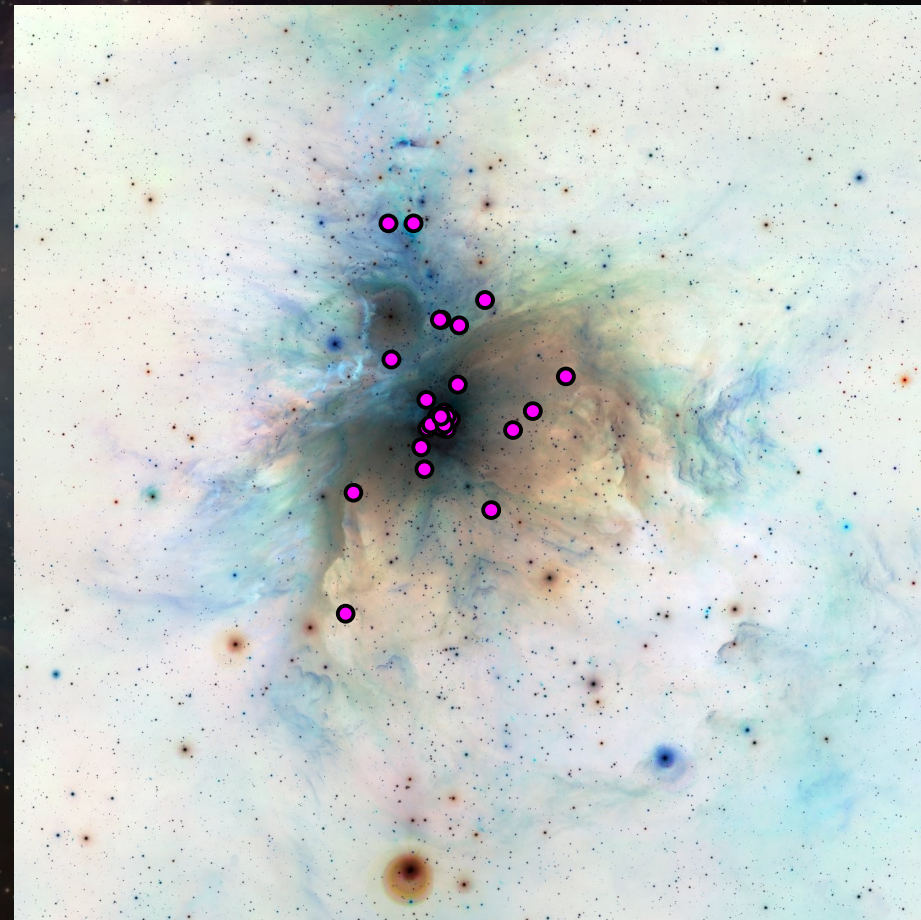
- Binaries are the main outcome of star formation
- Disk evolution probably different to single star disk evolution
- More than 60 exoplanets around stellar binary components

The Sample and Observations



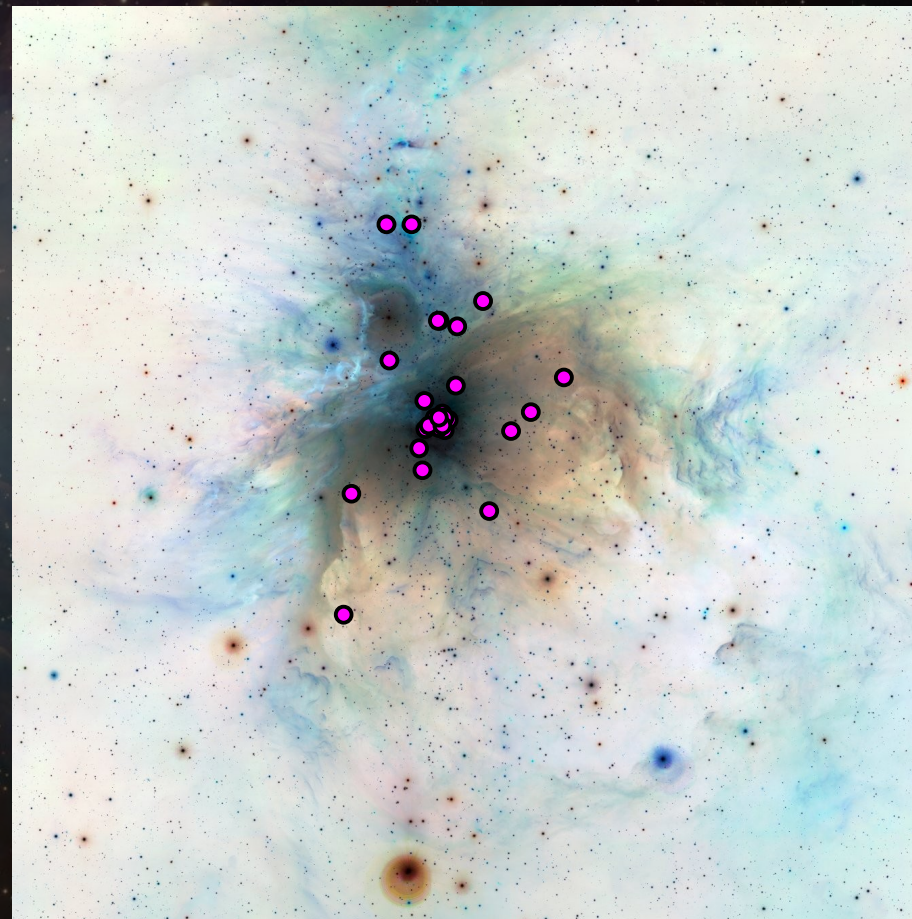
The Sample and Observations

→ 27 Binaries in Orion, K–M Type,
sub-arcsecond separations
(= 100–400 AU)



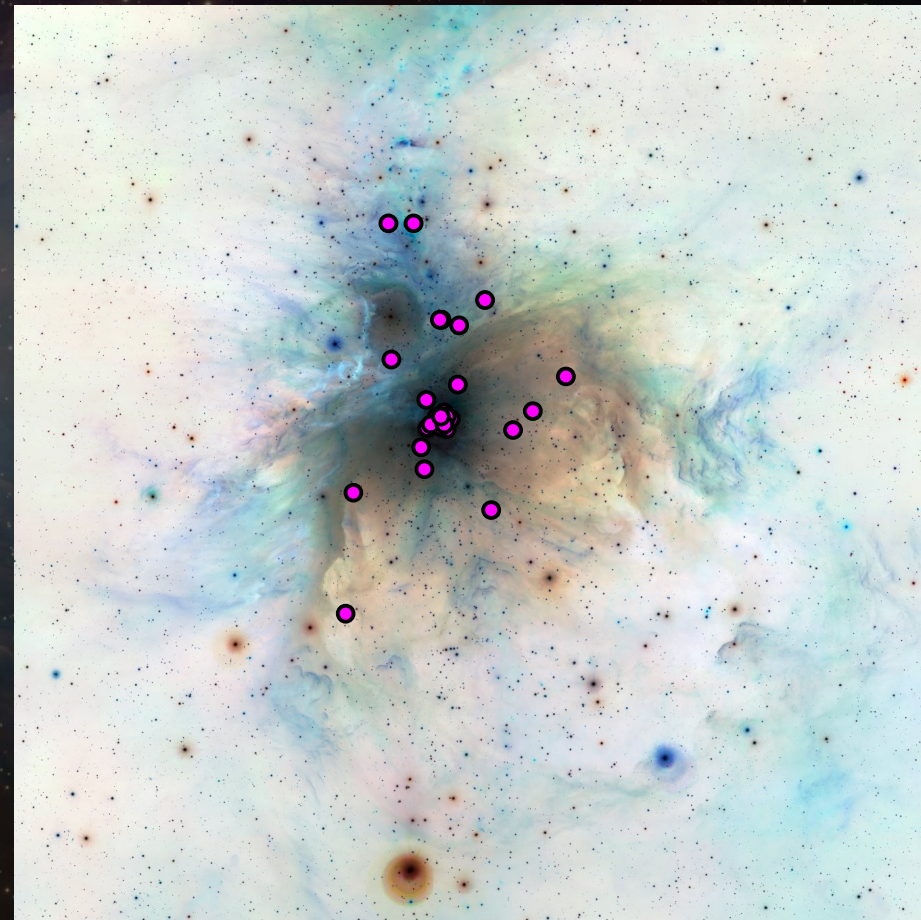
The Sample and Observations

- 27 Binaries in Orion, K–M Type, sub-arcsecond separations (= 100–400 AU)
- spatially resolved Near-Infrared **AO Imaging + Spectroscopy** with NACO/VLT & NIRI/Gemini



The Sample and Observations

- 27 Binaries in Orion, K–M Type, sub-arcsecond separations (= 100–400 AU)
- spatially resolved Near-Infrared **AO Imaging + Spectroscopy** with NACO/VLT & NIRI/Gemini
- For each binary *component*: Spectral Type, Age, Mass, Luminosity, Mass accretion, ...
 - **Disk indicators:**
 - Accretion Disks : Brackett- γ
 - Dust Disks : NIR color excess

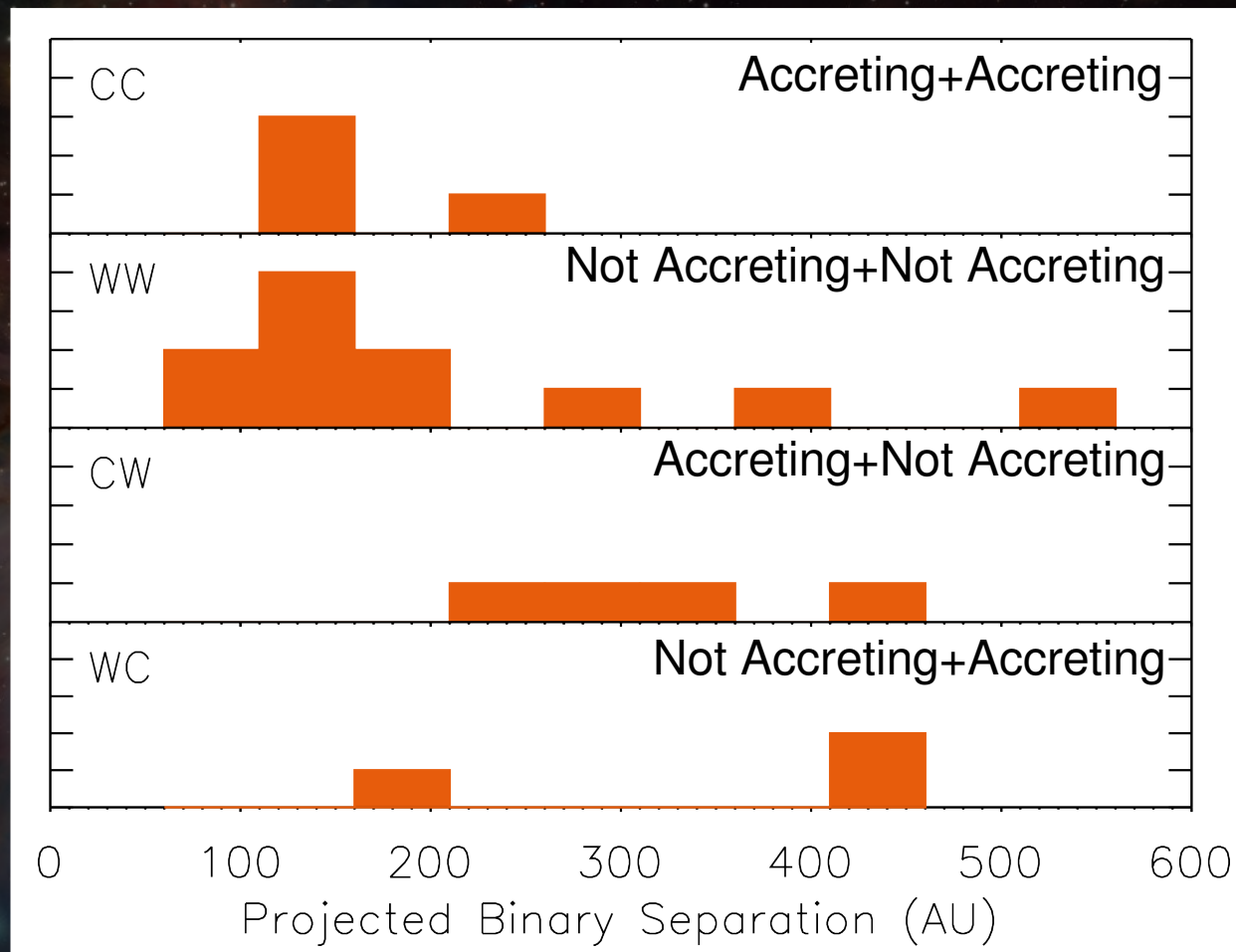


One Result:

Actively accreting
binary components

vs

binary separation

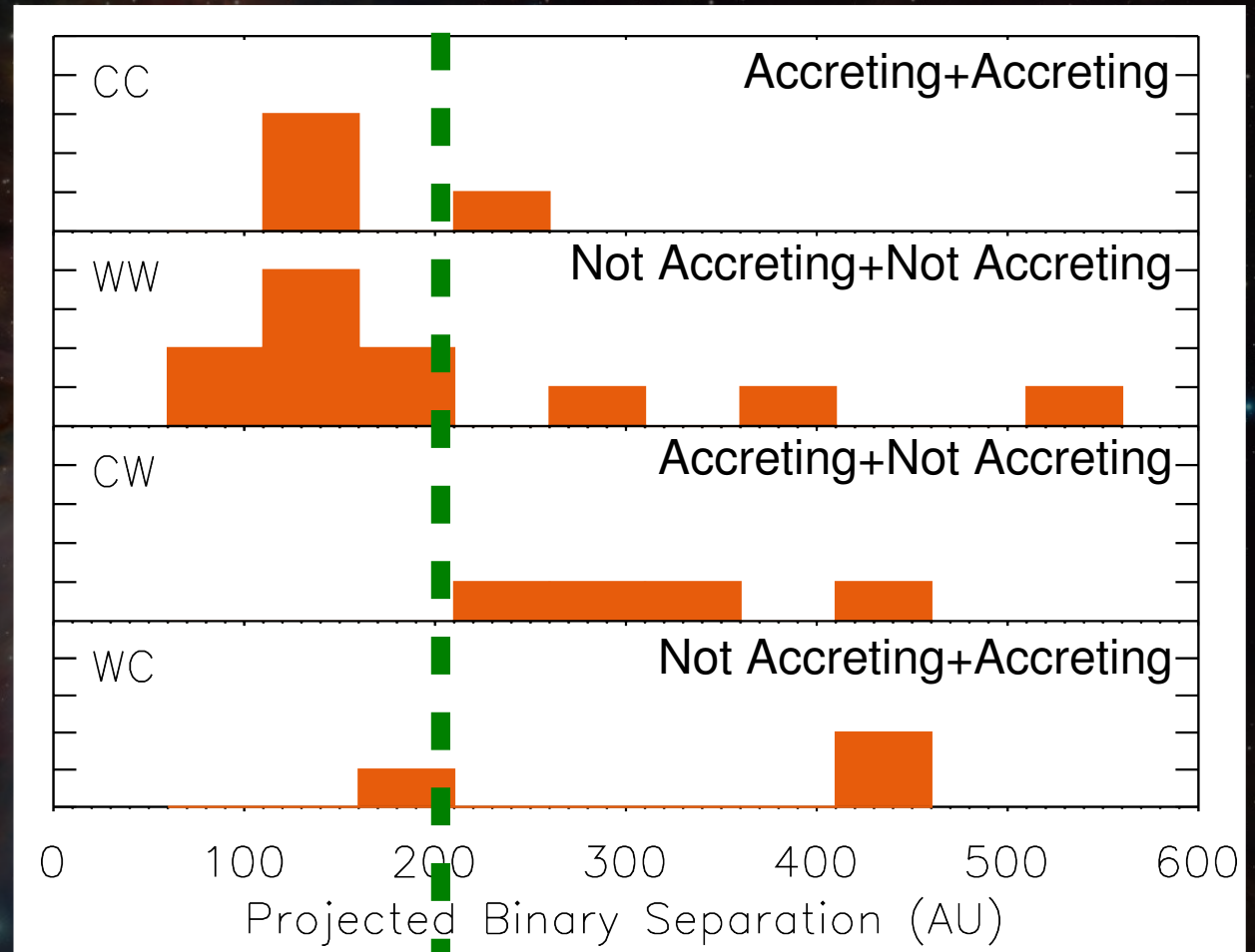


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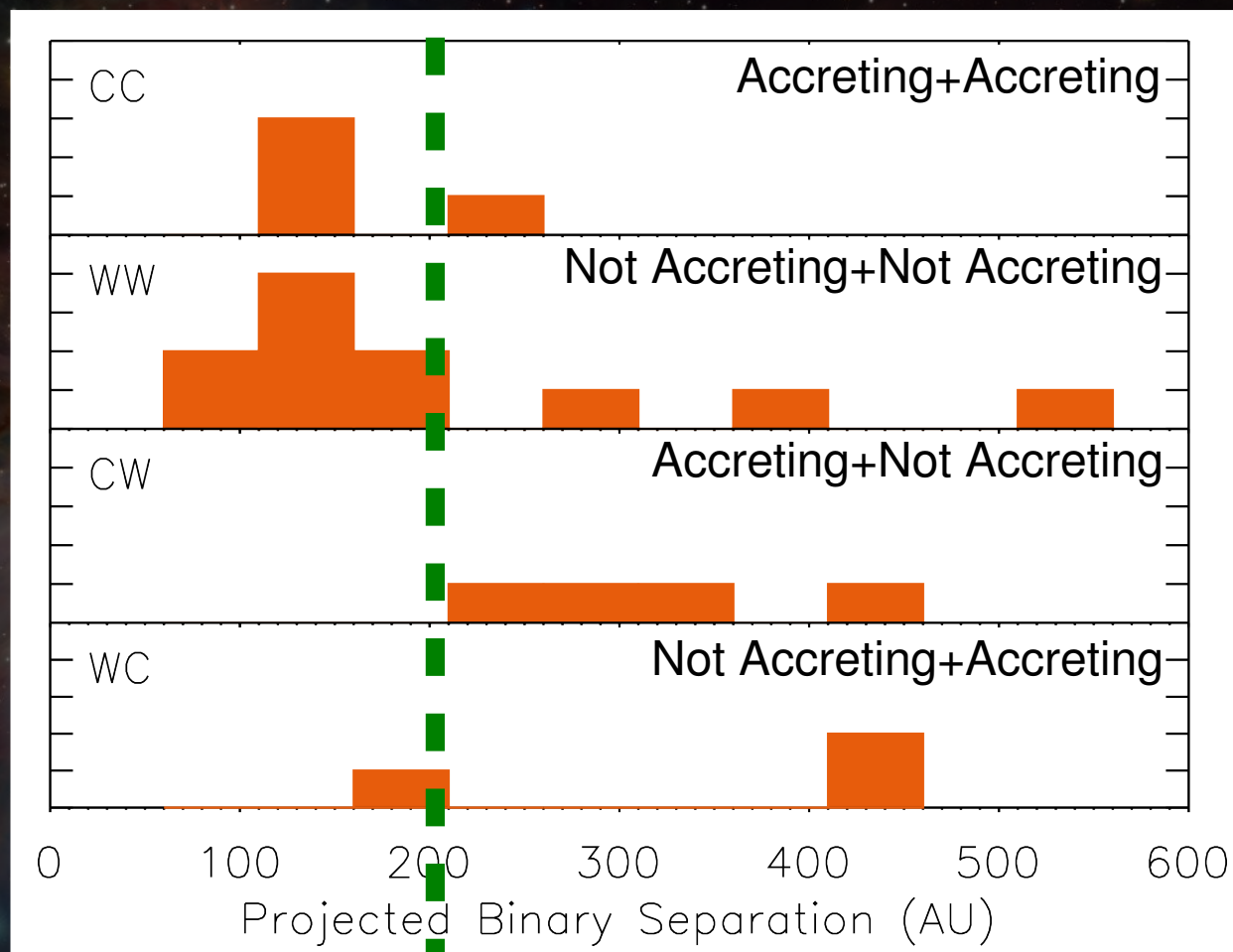


One Result:

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⇒ Disks evolve **synchronously** around close binary components

More Info and Results:

See me and Poster G05



TTauri Binaries in Orion: evidence for accelerated and synchronized disk evolution

IMPRS

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THE PROJECT. We conducted the largest spatially resolved photometric and spectroscopic survey of disks around the individual components of low-mass binaries in the Orion Nebula Cluster (ONC), the nearest rich high-mass star forming region in the galaxy. The acquired data allow us to investigate the presence and frequency of dust and accretion disks around the individual components of medium separated (100–400 AU) binaries. The inferred relative disk lifetimes of component star disks compared to disks of single stars in the ONC and to binaries of other clusters, can expose mechanisms and timescales of binary disk evolution in the dense environment of the Orion Nebula Cluster – an environment very different from that of e.g. Taurus and other nearby low-mass star forming regions.

THE SAMPLE/OBSERVATIONS. 27 binaries in the ONC were ran-

