Age Spreads and Systematics in λ *Orionis* with *Gaia* DR2 and the SPOTS tracks

Lyra Cao[1], Marc Pinsonneault[1], Lynne Hillenbrand[2], Michael Kuhn[2] *in prep (2021)*

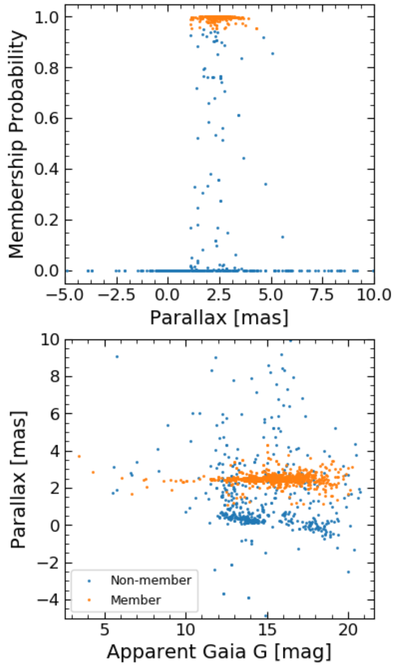
cao.lyra@gmail.com 1. *The Ohio State University Department of Astronomy* (140 West 18th Avenue, Columbus, Ohio 43210), 2. *California Institute of Technology Department of Astronomy* (1200 East California Boulevard, Pasadena, California 91125)

Introduction

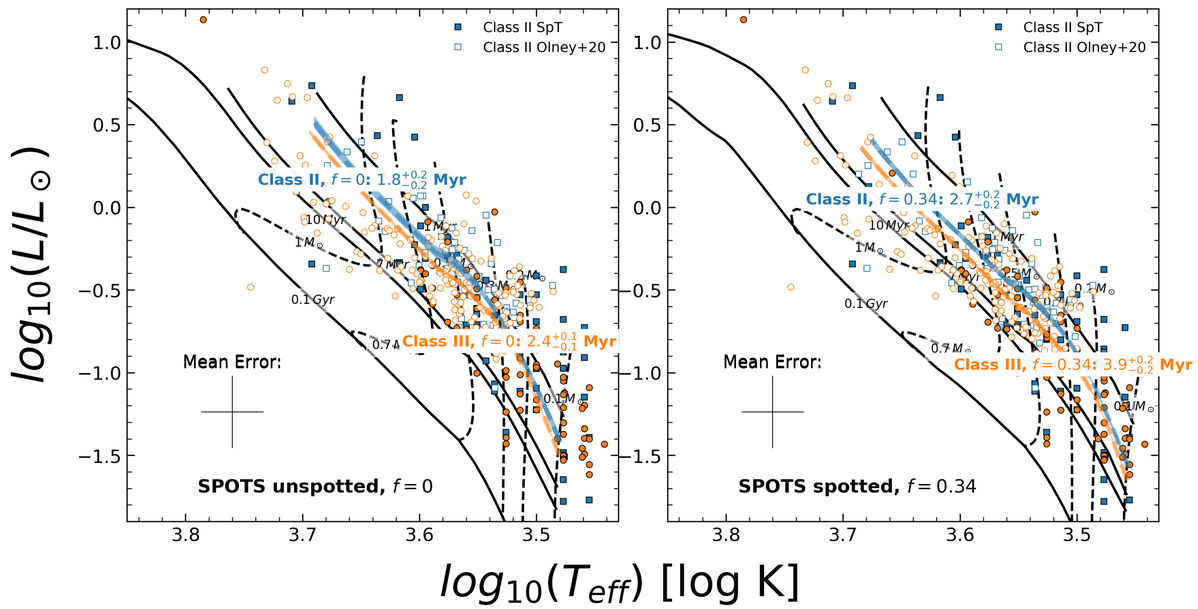
- The large luminosity spread of pre-MS stars in young stellar associations may be primarily due to observational errors or uncertainties in a cluster's evolutionary history.
- Constraining observational uncertainties with star-by-star SED fitting, *Gaia* DR2 (Fig. 1), and external T_{eff} (YSOC + APOGEENet) may reveal the underlying pre-MS age distribution.
- Ages with magnetic models explain eclipsing binaries and have been tested in older clusters.
- **We use SED fitting to characterize the age distribution of λ Ori in spotted/magnetic and classical stellar evolutionary models.**

Results

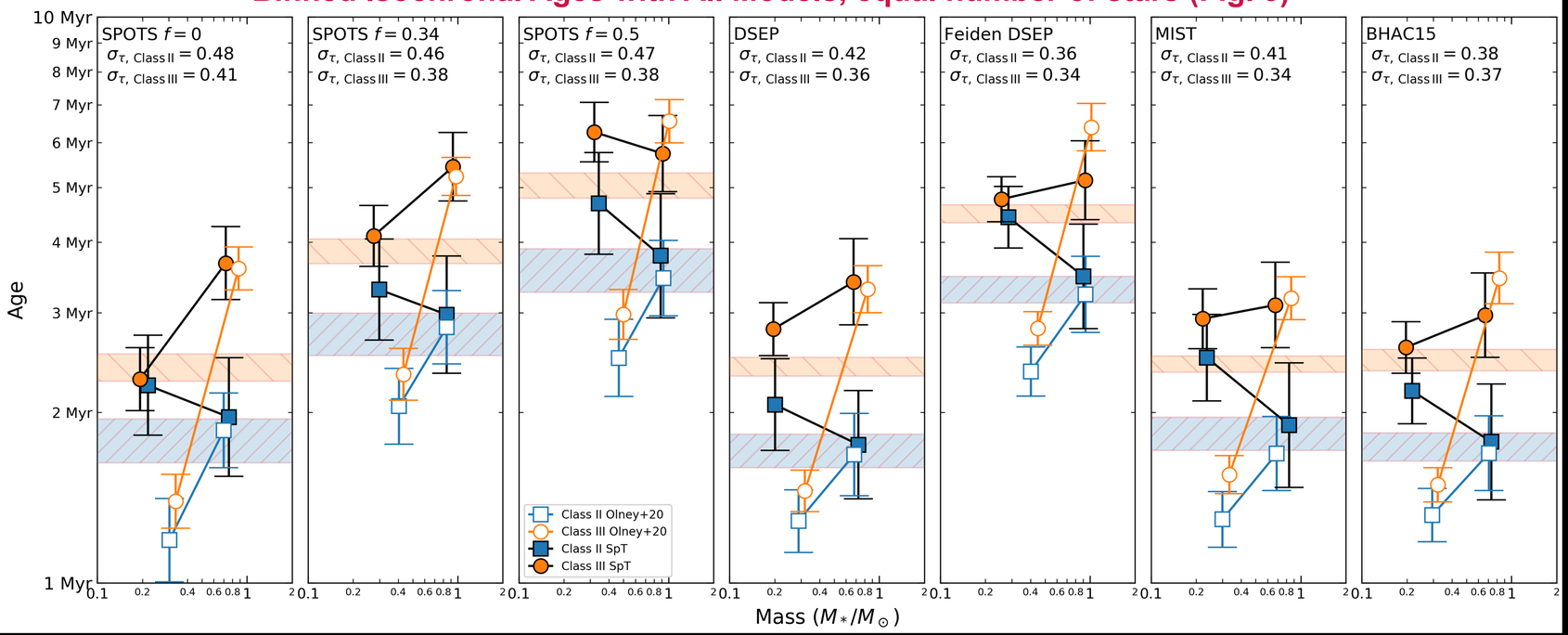
- There is **a systematic underestimate (~50%)** of ages using classical rather than spotted or magnetic tracks, at an age of 5 Myr (Fig. 3).
- Class II (CTTS) appear systematically younger than Class III (WTTS) (Fig. 2 & 3).
- There is a relatively large spread in luminosity, and inferred isochronal age (0.3 dex), after accounting for uncertainties in A_v & T_{eff} (Fig. 2.)
- We estimate the age of λ Orionis at **3.9 ± 0.2 Myr** from our fiducial spotted model (Fig. 3).
- Spotted models produce more consistent ages for stars of all masses, especially for the low mass stars (Figs. 2 & 3).
- **We present our HRD from SpT's B9-M5 and isochronal ages/masses in λ Ori. (in paper)**



Left: Cluster Membership (Fig. 1), Below: Dereddened HRD (Fig. 2)



Binned Isochronal Ages with All Models, equal number of stars (Fig. 3)



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