

An Abundance of Very Metal-Poor Stars in the Solar Neighborhood

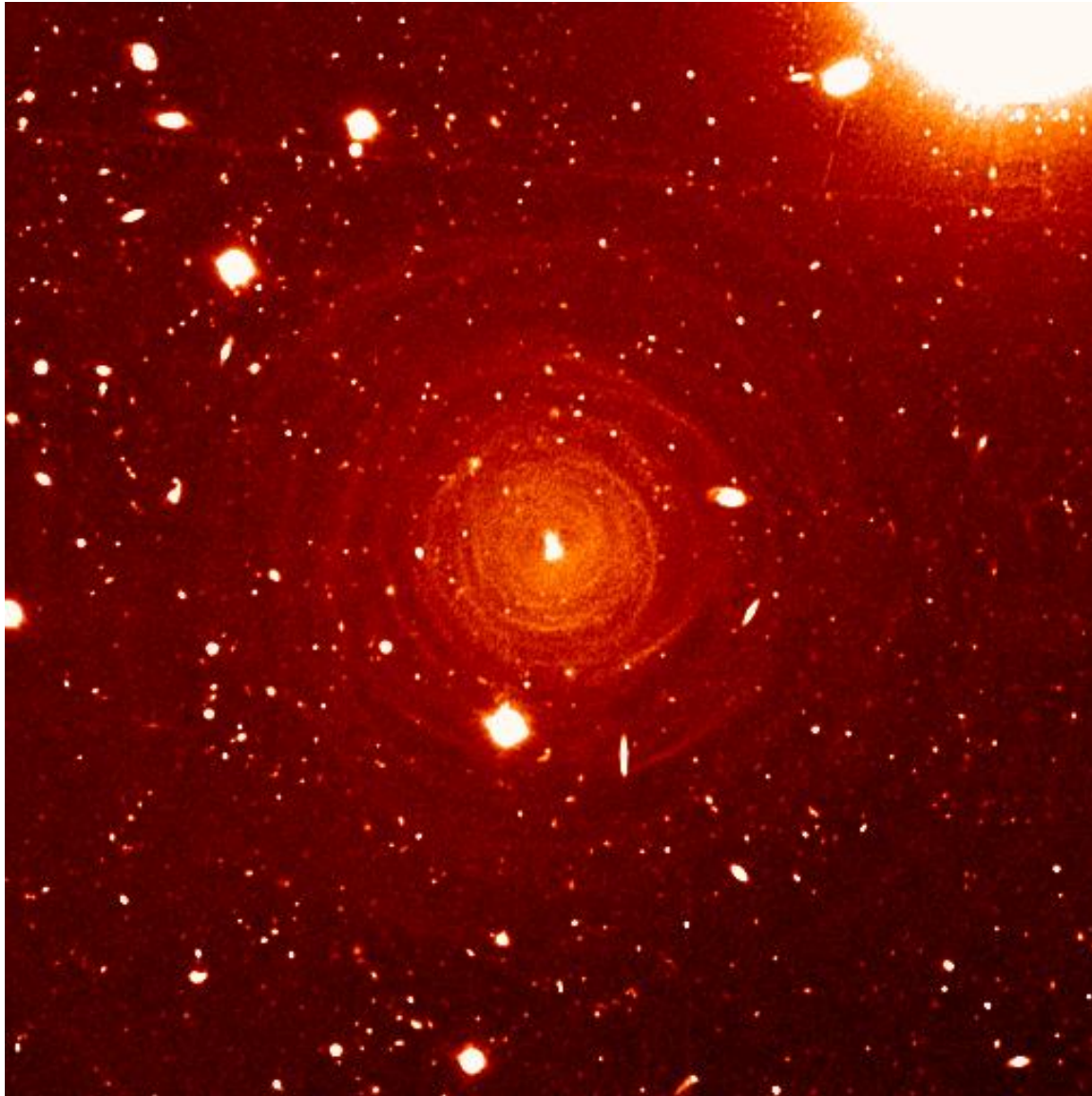
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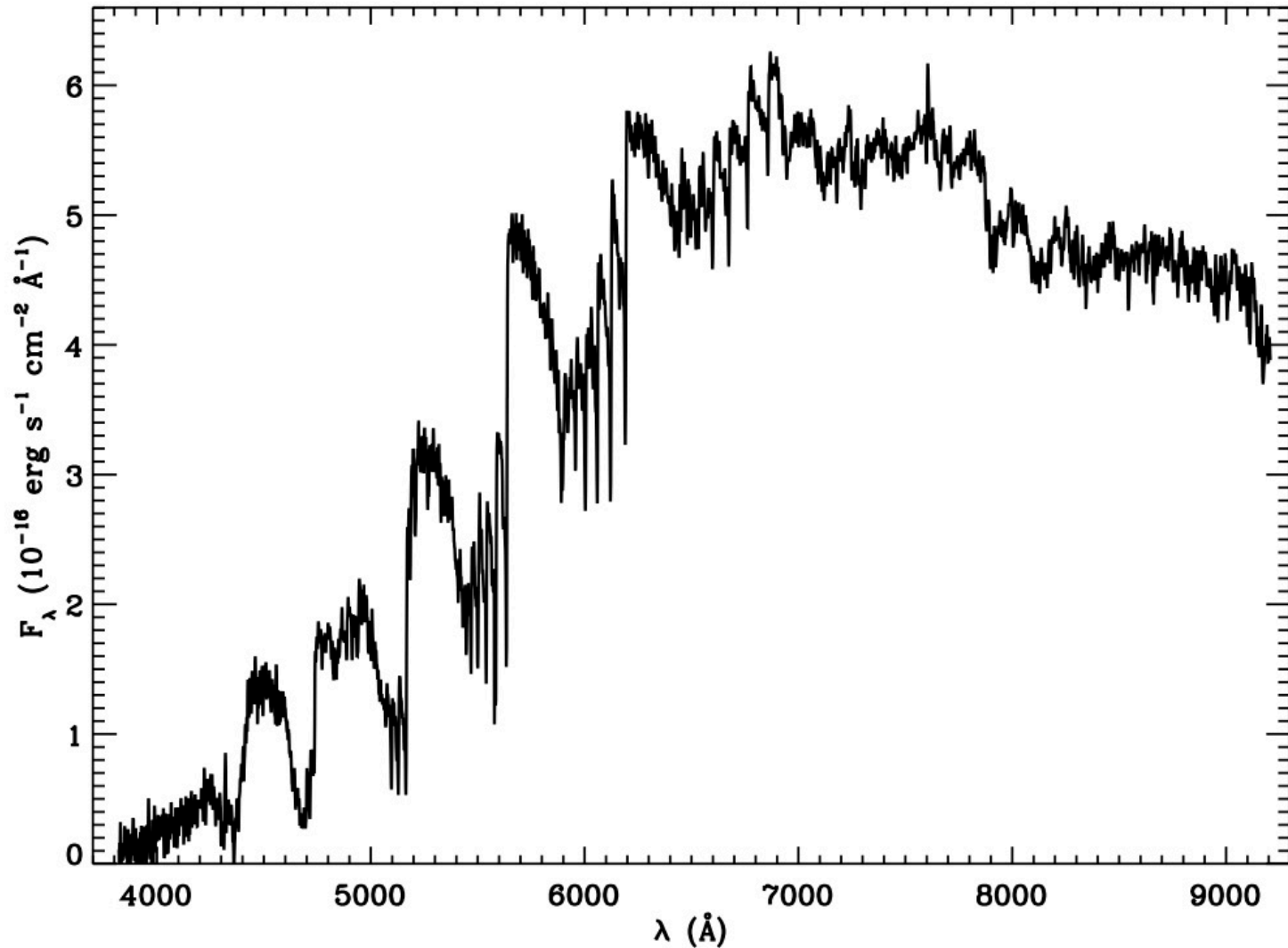
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This Is A Carbon Star



This is a Carbon Star Spectrum



G77-61: The First Dwarf Carbon (dC) Star

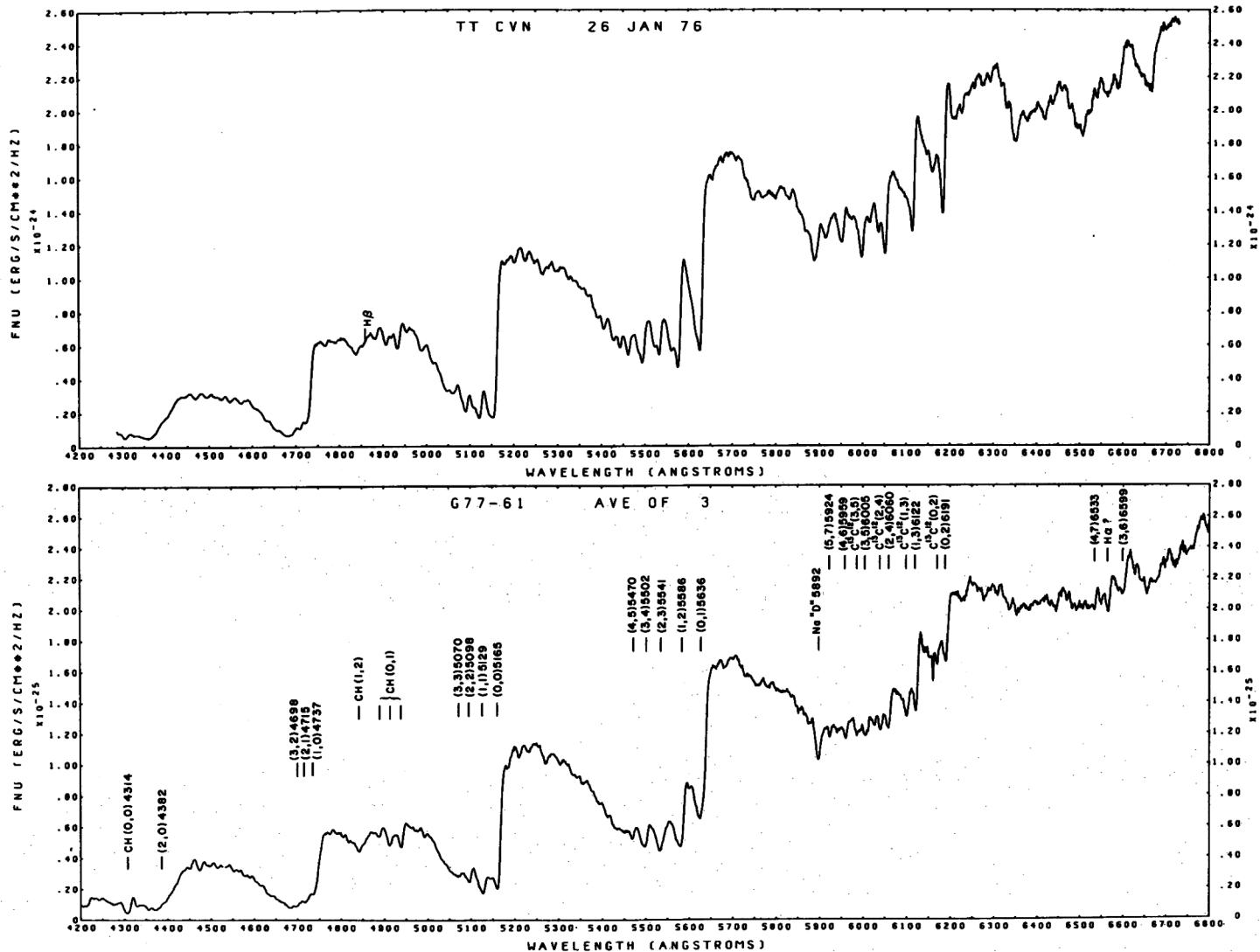


FIG. 1.—Lick 3 m IDS scans of a giant carbon star TT CVn (C3,5 CH—Victoria classification) and G77-61. The $^{12}\text{C}^{13}\text{C}$ band heads of the (2, 0) sequence are evident in G77-61, but appear only weakly in TT CVn.

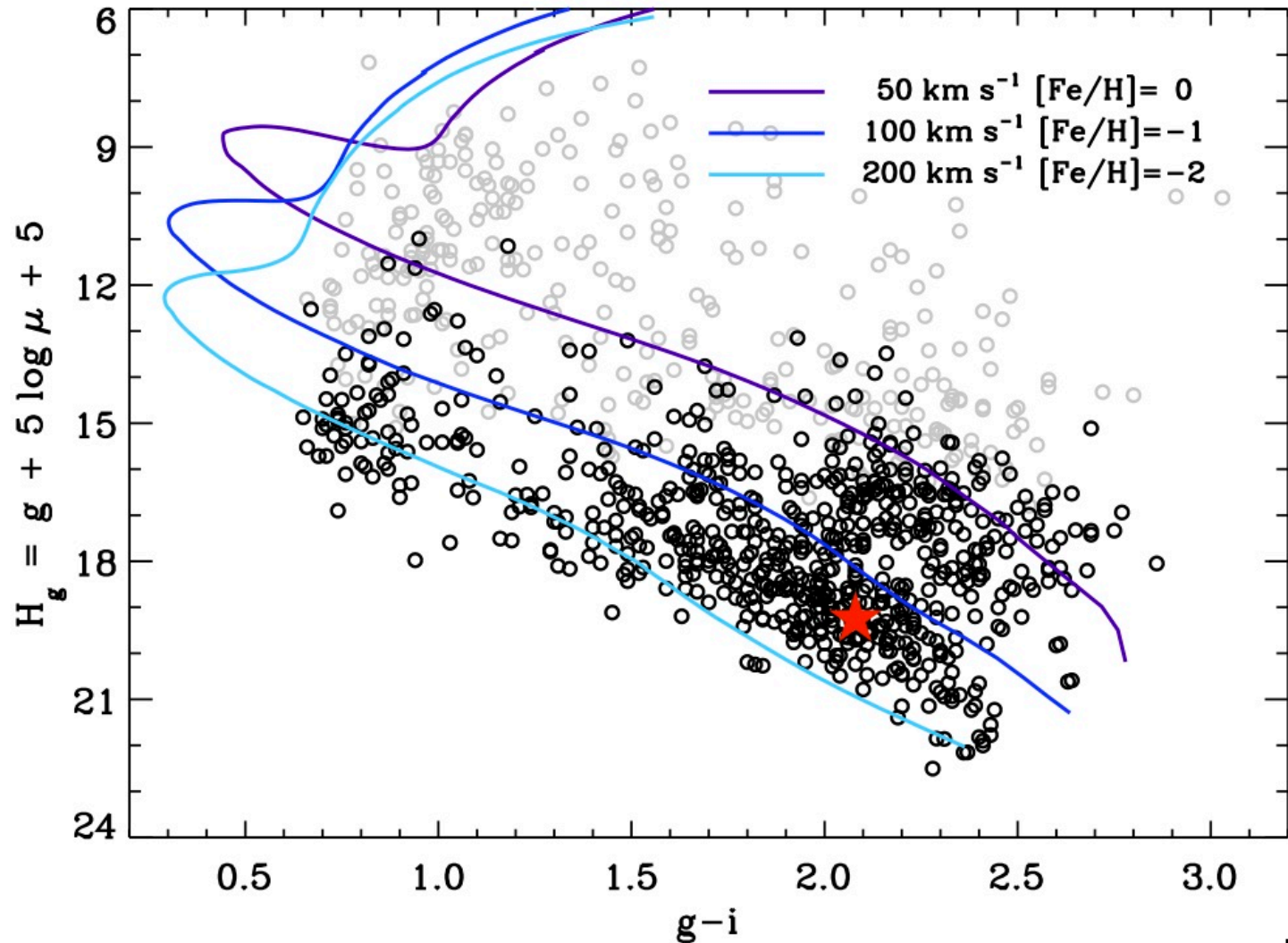
dC Prototype Fact Sheet

- G77-61 discovered 1977 at Lowell (Dahn et al. 1977)
- $M \approx 0.3 M_{\odot}$ halo star currently at 78.7pc
- SB1 spectroscopic binary in 245 d orbit (Dearborn et al. 1986)
- $[Fe/H] = -4.0$ (Plez & Cohen 2005)

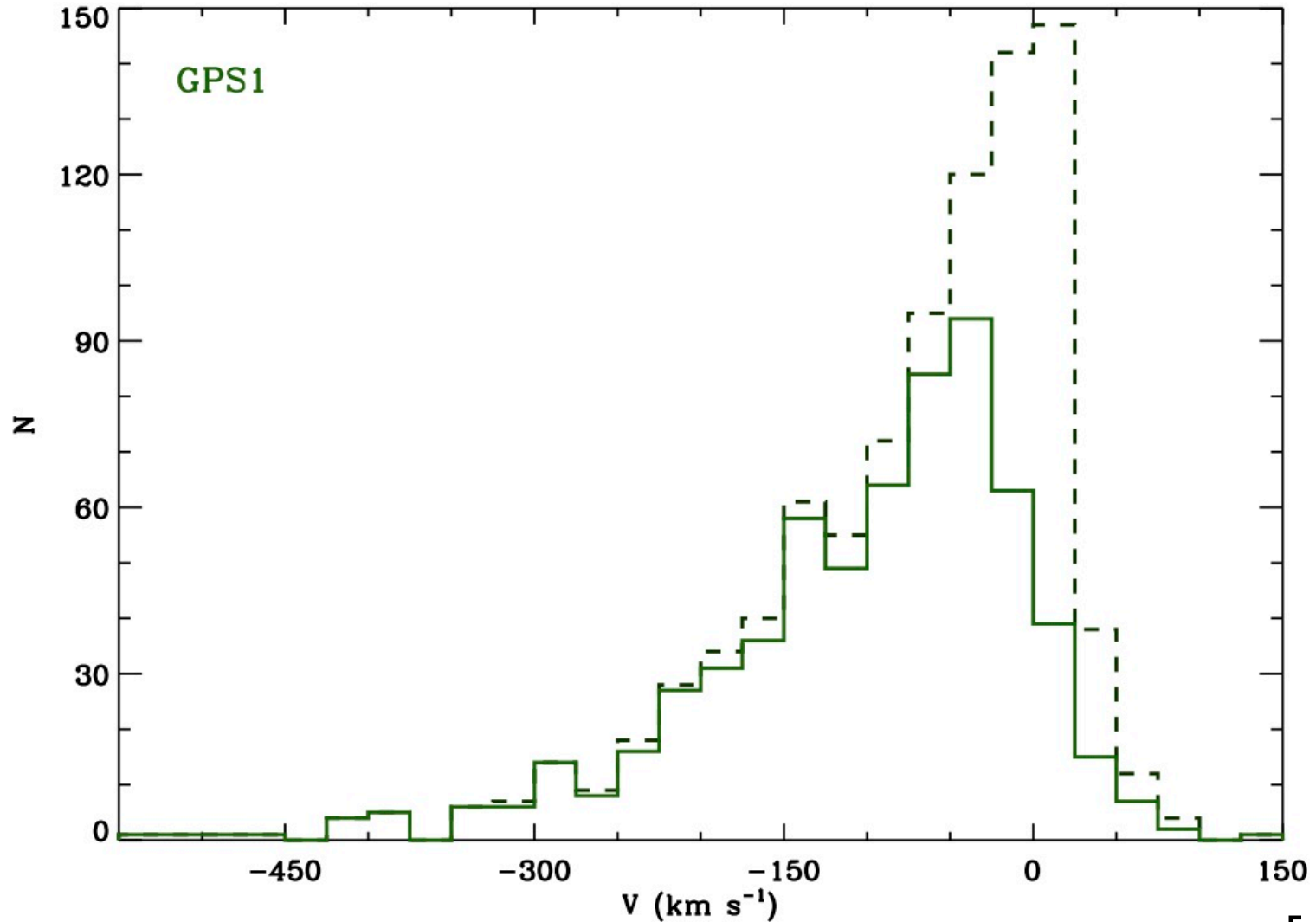


L. Whitehouse talk

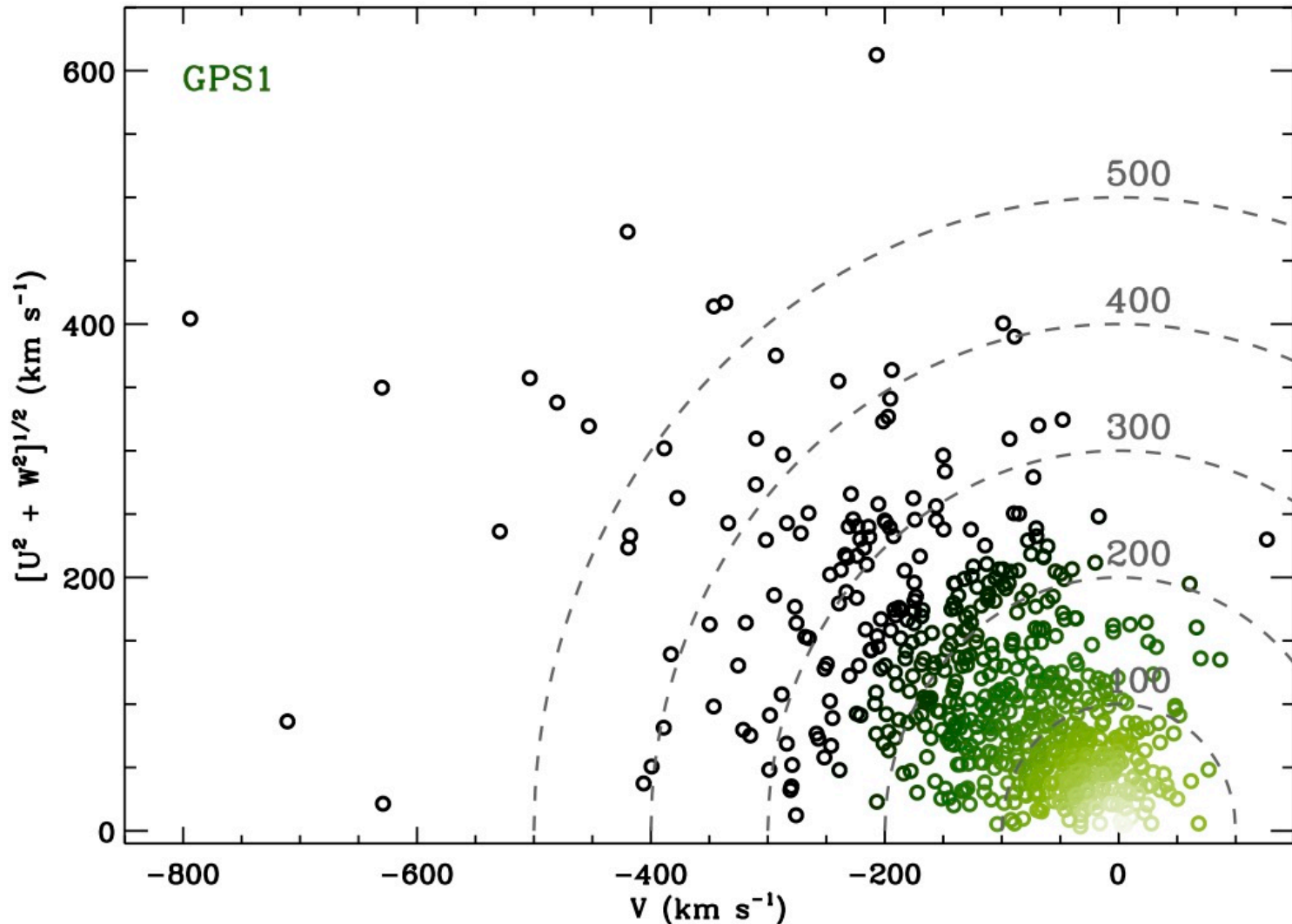
Gaia DR1 Reduced Proper Motions



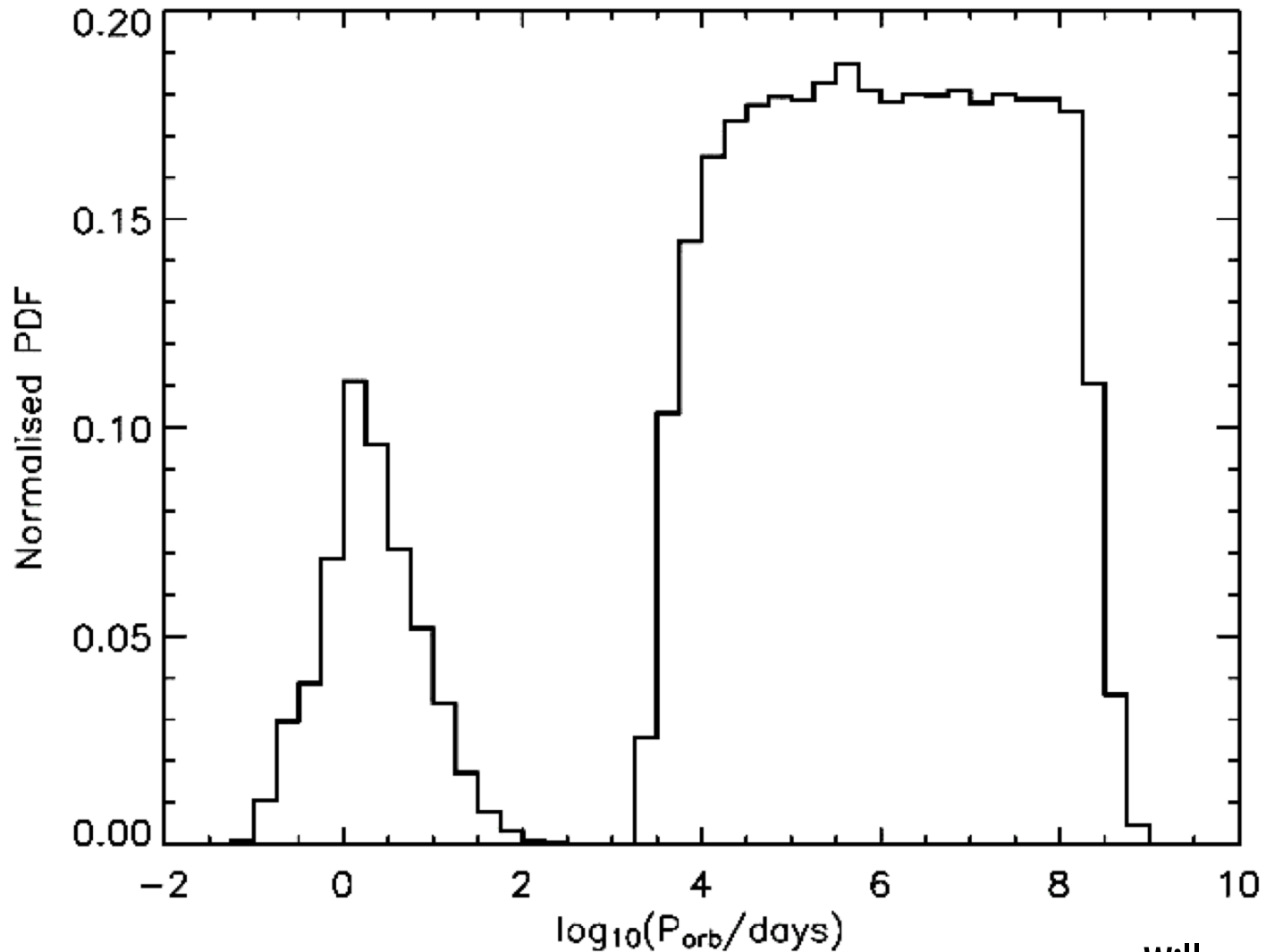
dC Stars Lag Behind Disk Rotation



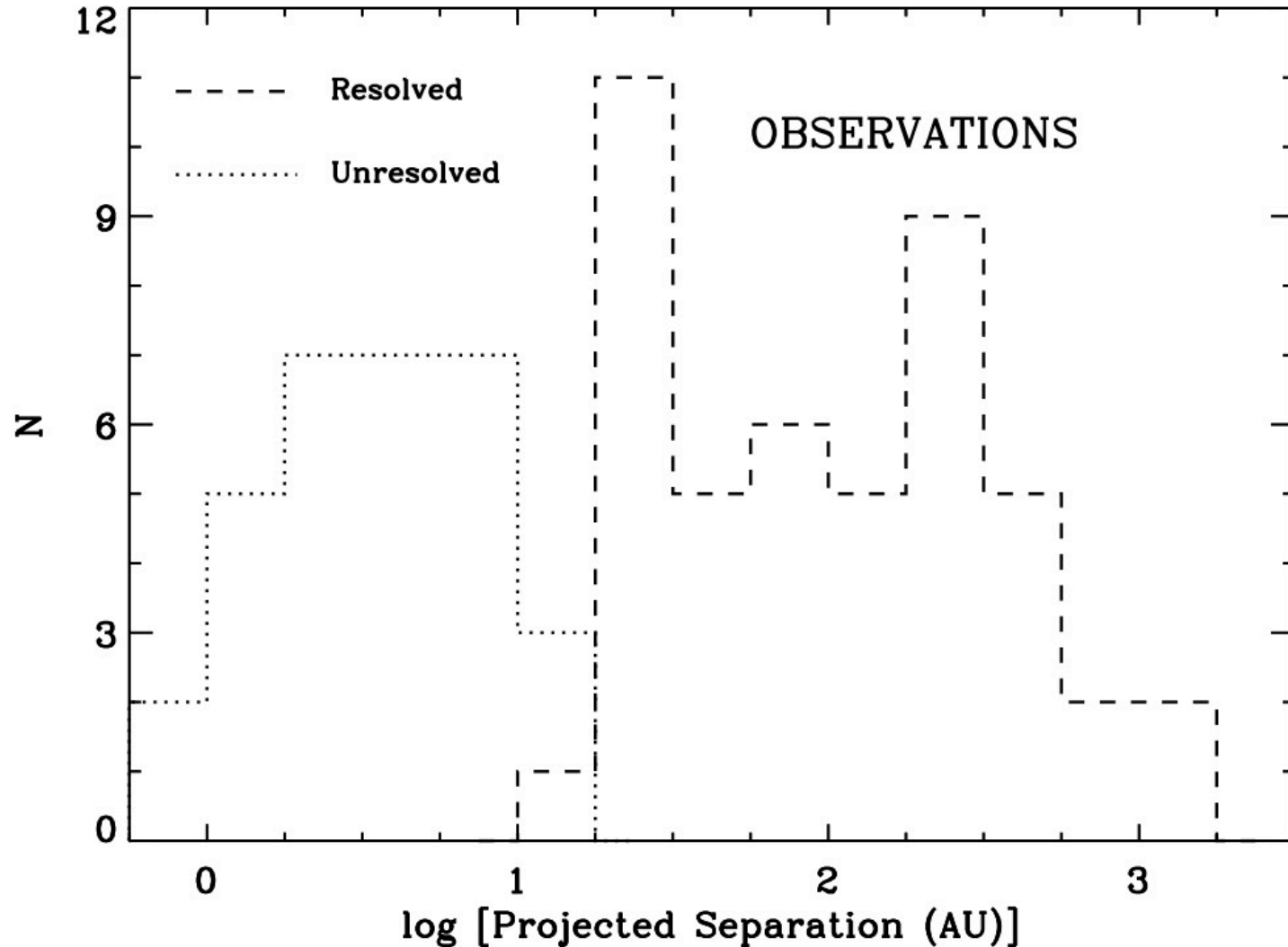
dC Stars Have a Significant Halo Component



Theoretical Models for Binary Orbits



Empirical Data for Binary Orbits



Looking Ahead

- Gaia and better kinematical constraints
- Fundamental properties, identification, occurrence
- Atmospheric models and abundances!
- Steller and binary evolution modeling
- Spectroscopy at higher resolution

Thank you very much
ありがとうございます

