

NUCLEAR STELLAR DISK AND GALACTIC BAR: TWO DISTINCT STRUCTURES

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ABSTRACT

The **Nuclear Stellar Disk (NSD)** is a compact, massive structure at the center of the Milky Way. How it relates to the **Inner Bar North (IBN)** is key to understanding the formation and evolution of our Galaxy's inner regions. To address this, we carried out a homogeneous spectroscopic pilot survey of stars in both components using KMOS/VLT (VVVX-GalCen). **Our analysis reveals differences in metallicity and α -element abundances**, demonstrating that the Nuclear Stellar Disk and the Inner Galactic Bar are two distinct stellar structures.

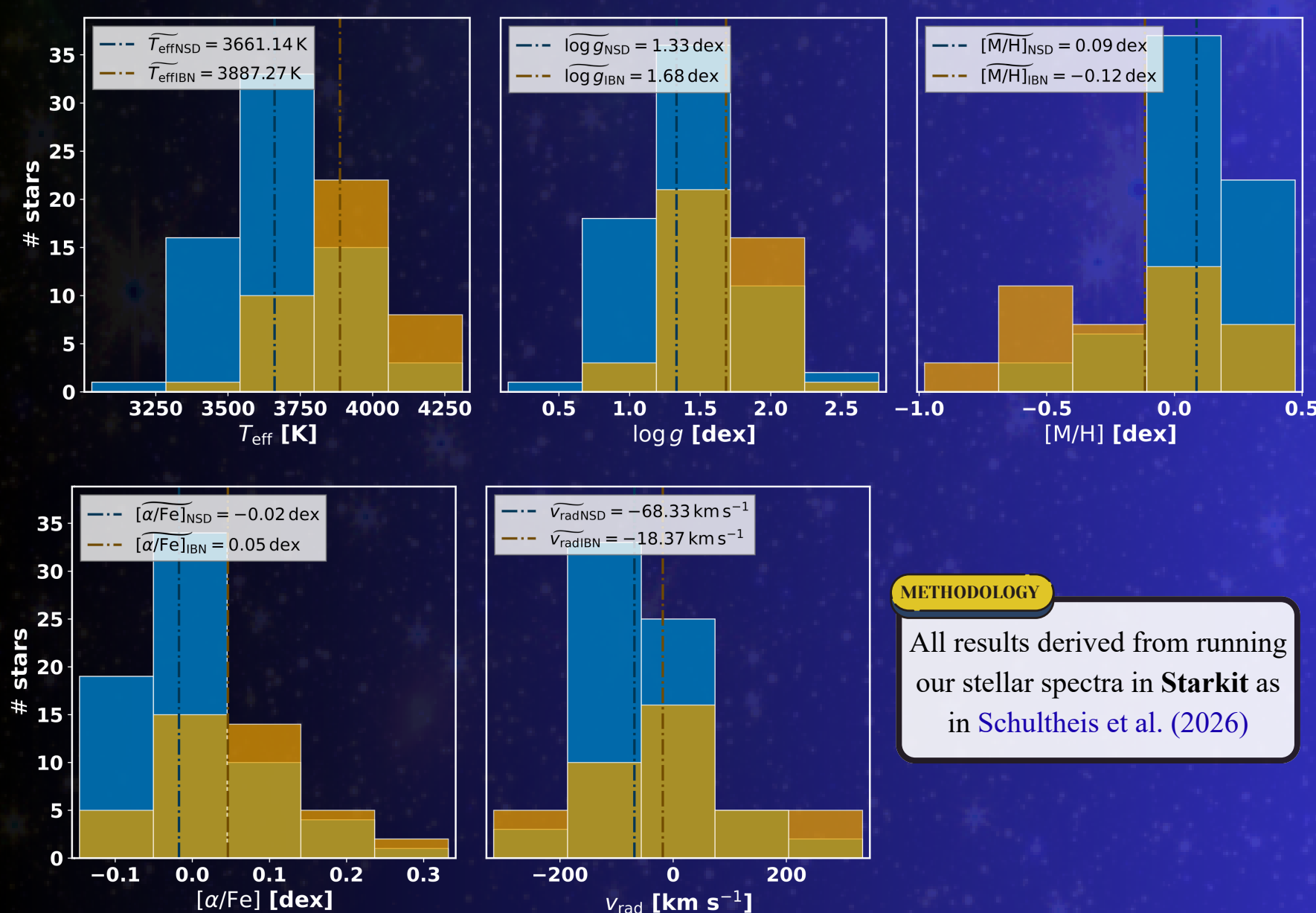
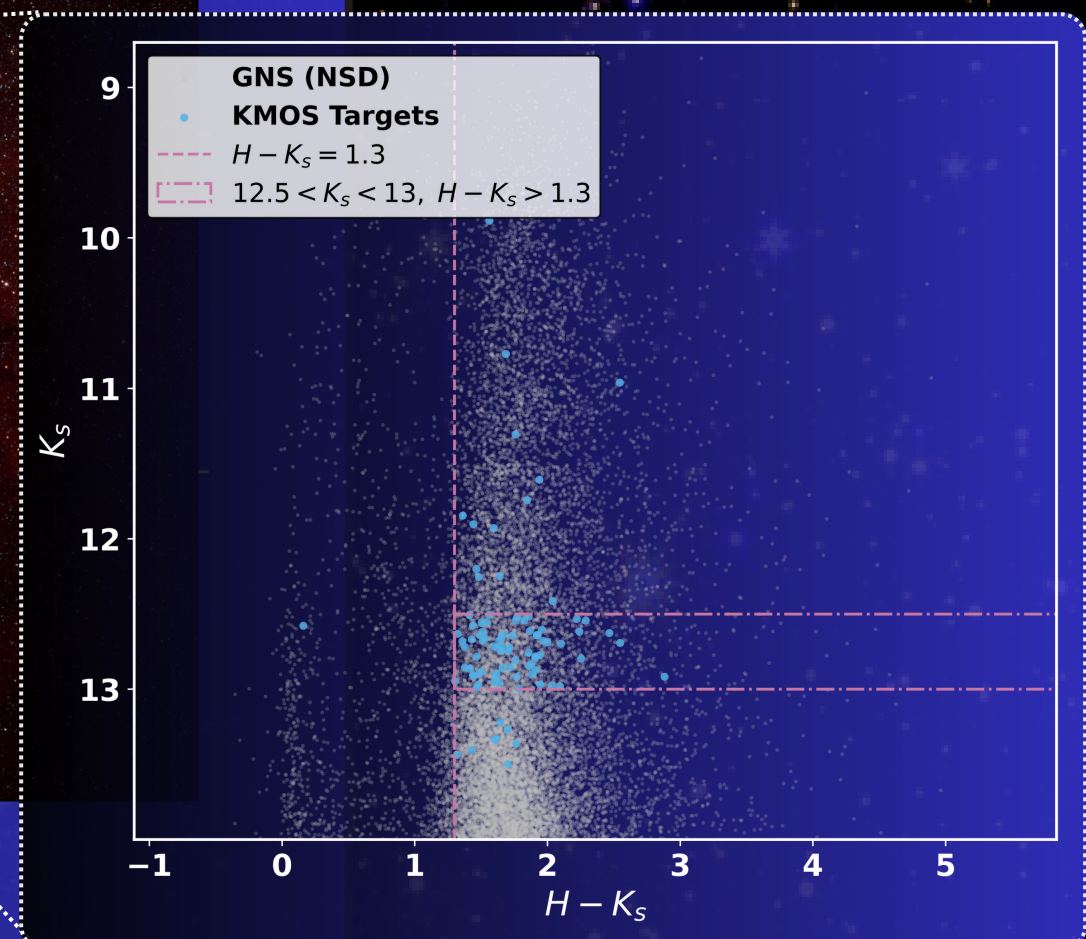
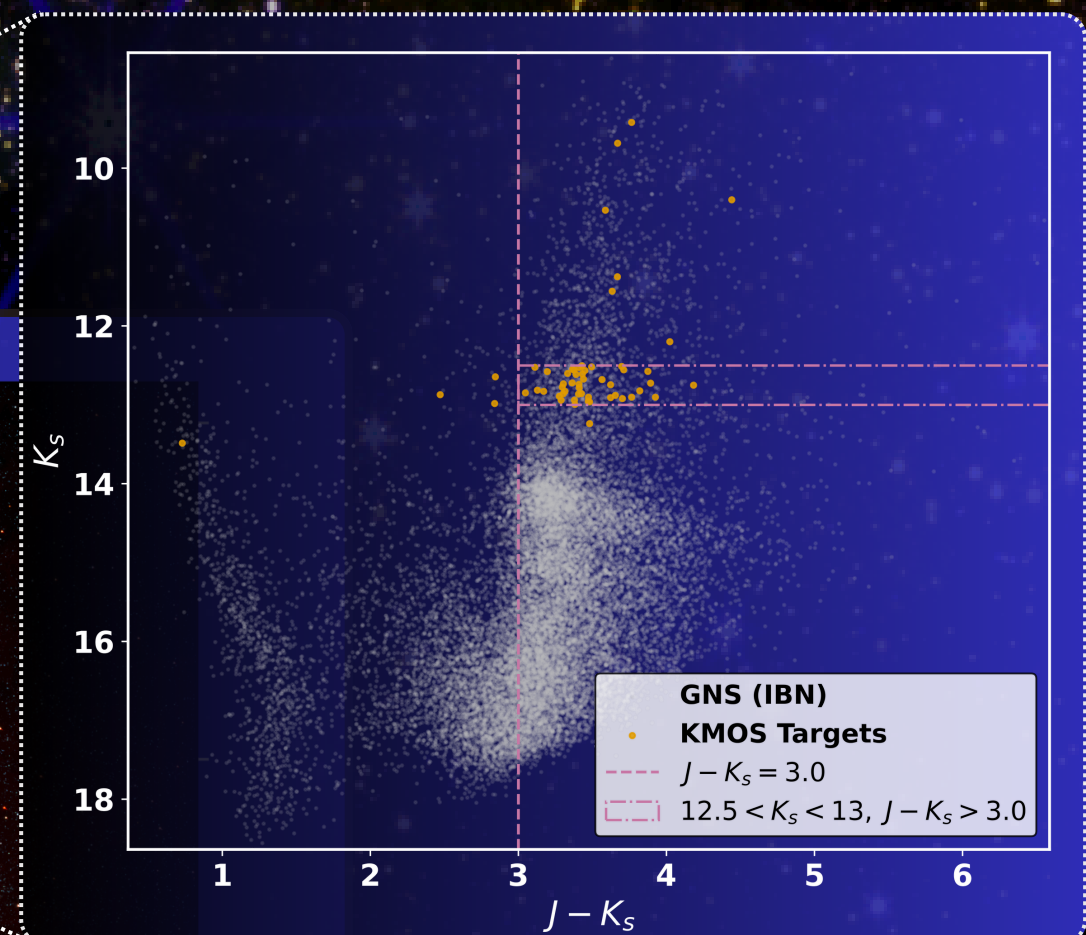
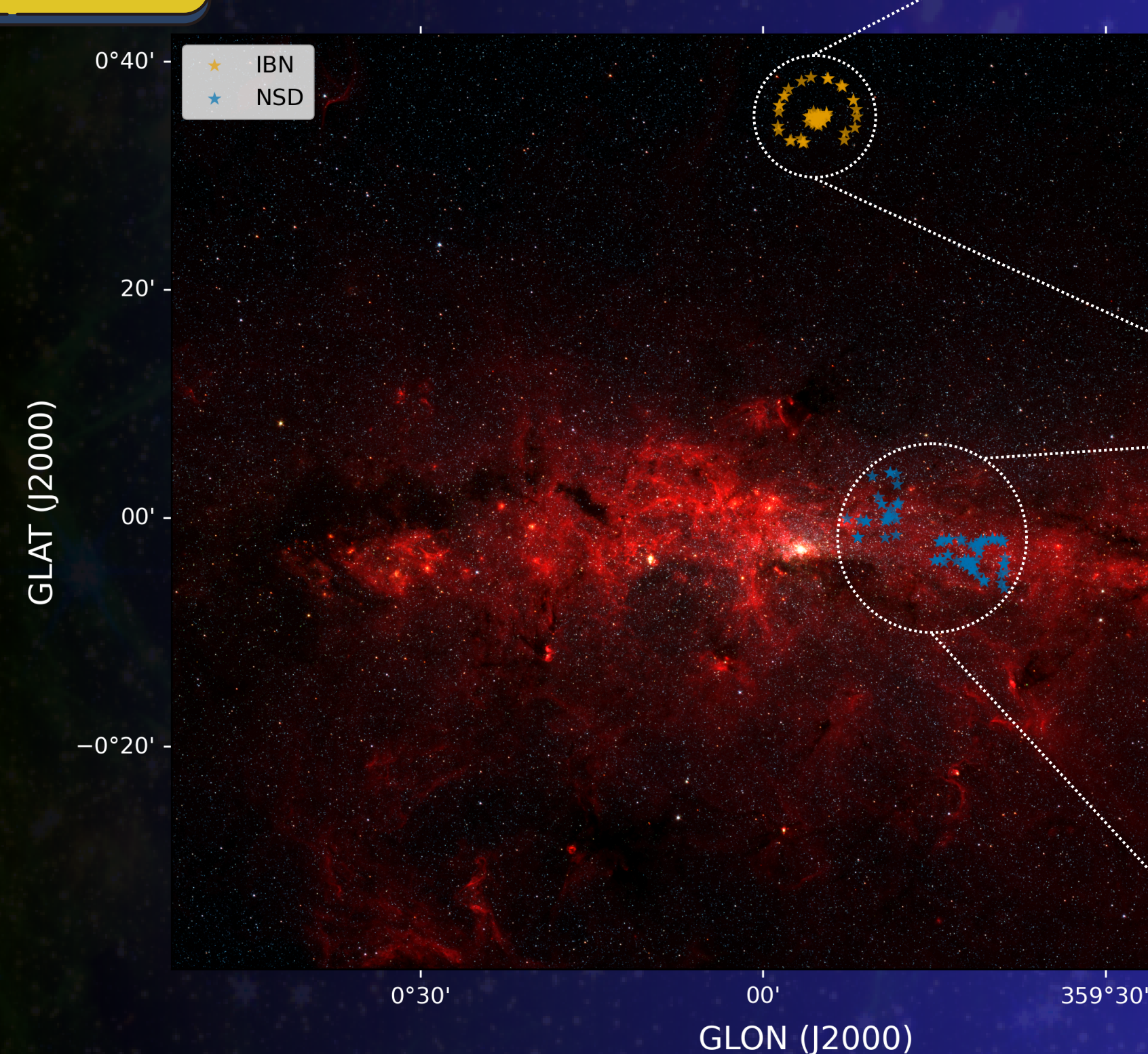
DATA

- Pilot study – VVVX-GalCen
- KMOS/VLT – K-band
- Our sample: 68 (NSD) + 41 (IBN) with $K_s \in [12.5, 13.0]$



PRELIMINARY: Statistics will improve dramatically with the full public survey (~40 000 stars).

RESULTS



CONCLUSIONS

- The higher metallicity of the NSD relative to the IBN indicates **different star formation histories**.
- Lower α -element abundances in the NSD compared to the IBN point to **rapid chemical enrichment**.
- Both samples are **dominated by cool stars**.

NSD and IBN are two distinct stellar structures