A Sub-Parsec Hornet's Nest of Gas, Dust, and Stars:

Ionization Structure & Metal Enrichment of the Galactic Center Minispiral Observed with JWST

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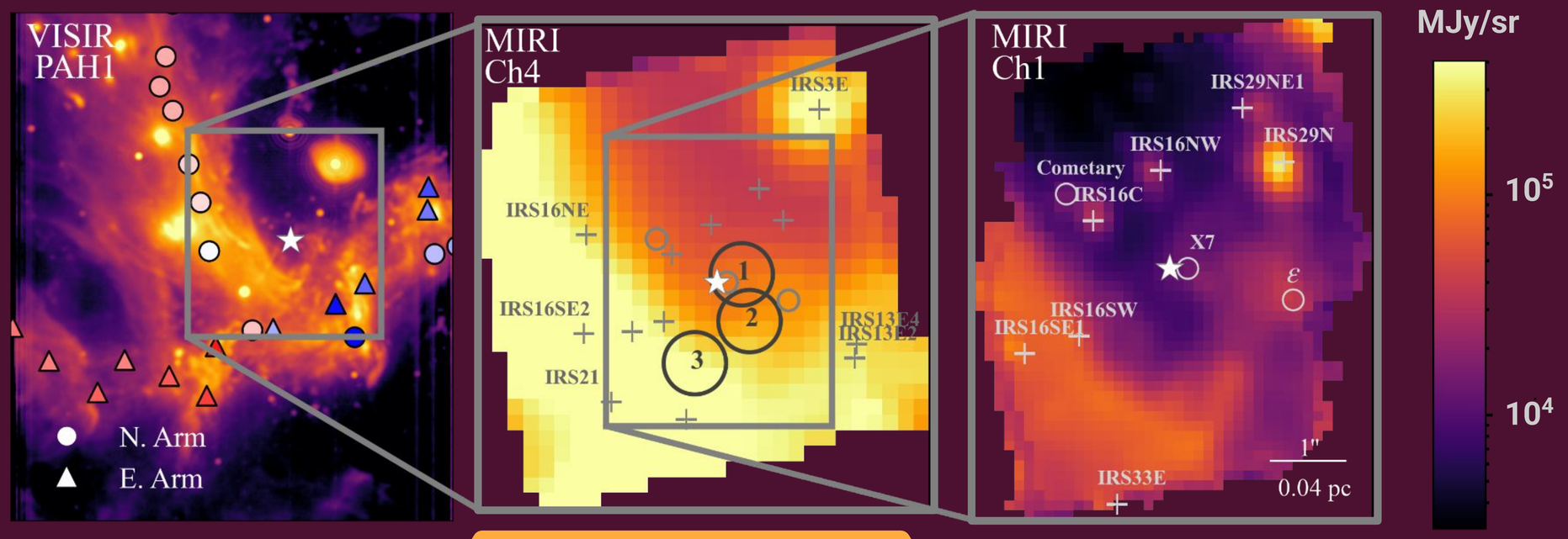
nmford20.github.io



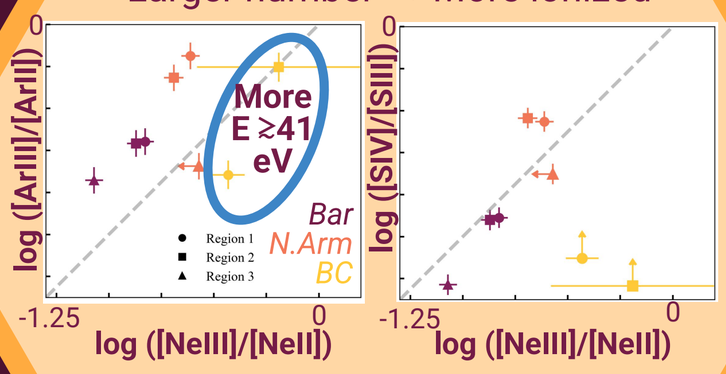
Sgr A* is the **nearest quiescent SMBH**.

What are the properties of its surrounding fuel supply?

We use the ***JWST*** **MIRI MRS IFU** to spatially map ionized emission lines from the **Galactic Minispiral gas at sub-parsec scales.**

Gas Ionization

Line ratio diagnostics:
Larger number → More ionized



BC Structures* **most ionized in neon (high ionization potential)
→ **fast radiative shocks** generate harder flux

The Galactic Minispiral **gas is mildly super-solar, ionized by Wolf-Rayet stars**, and displays **dust destruction**. Blueshifted compact (BC) structures experience a **harder radiation field** driven by **fast radiative shocks** from interactions with stellar winds, Sgr A* outflows, and/or the ambient medium.

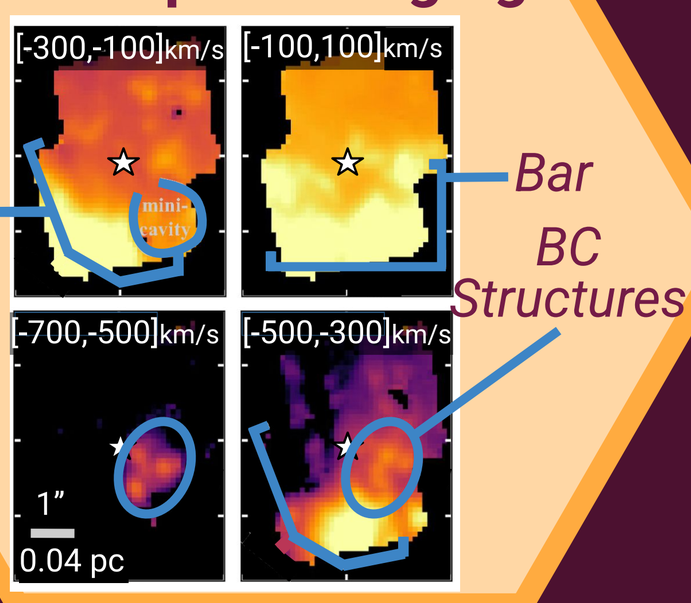
Gas Composition

Average Abundances [$X_\odot$]

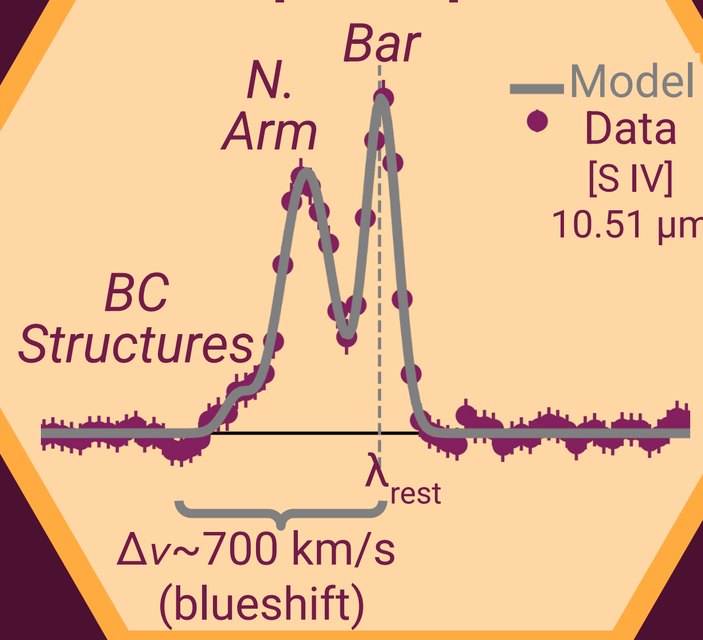
	Bar	*N. Arm*	*BC*
Ar	1.9	2.0	1.4
Ne	0.7	0.9	0.6
S*	1.6	0.7	–
Ni*	0.8	2.4	> 1.4
Fe*	1.1	0.8	–

*Ionization Correction Factor or density-dependent

Minispiral Imaging



Minispiral Spectra



Scan for manuscript & references