Strange Abundances in a White Dwarf Star:

Evidence for Simultaneous Accretion of Rocky and Icy Bodies

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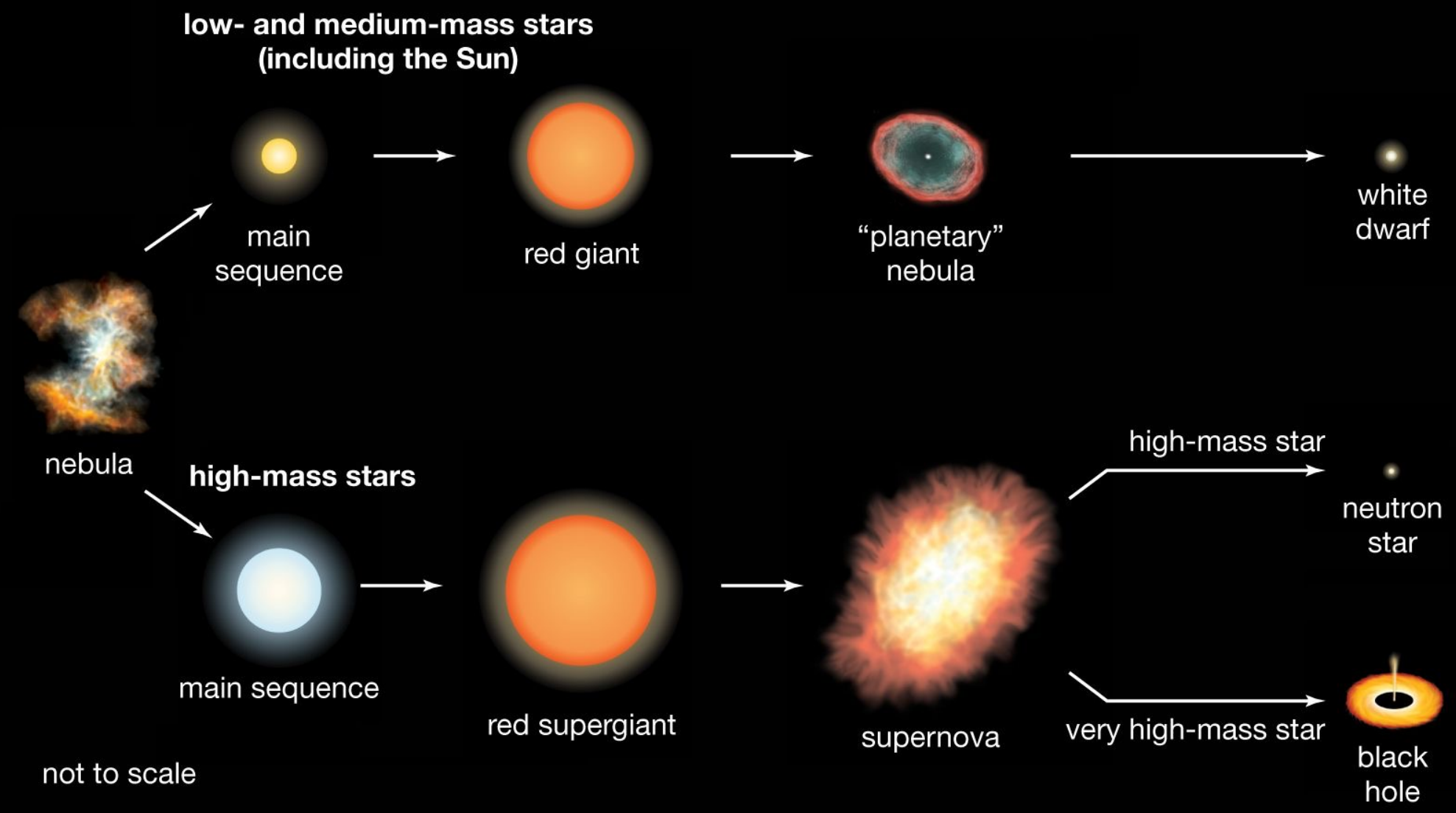
In a nutshell:

We found the first evidence for a white dwarf star consuming two distinct objects

What is a White Dwarf Star?



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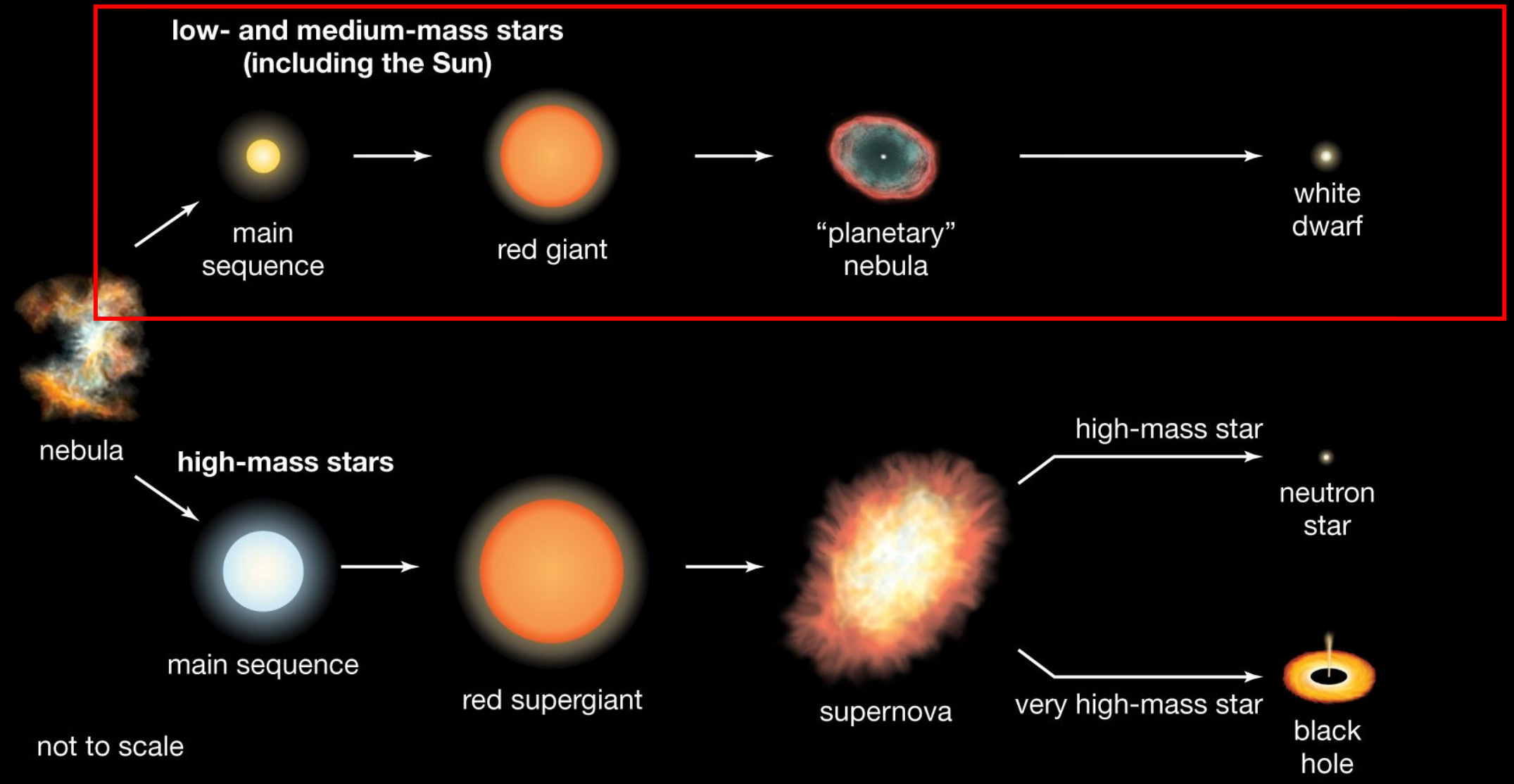

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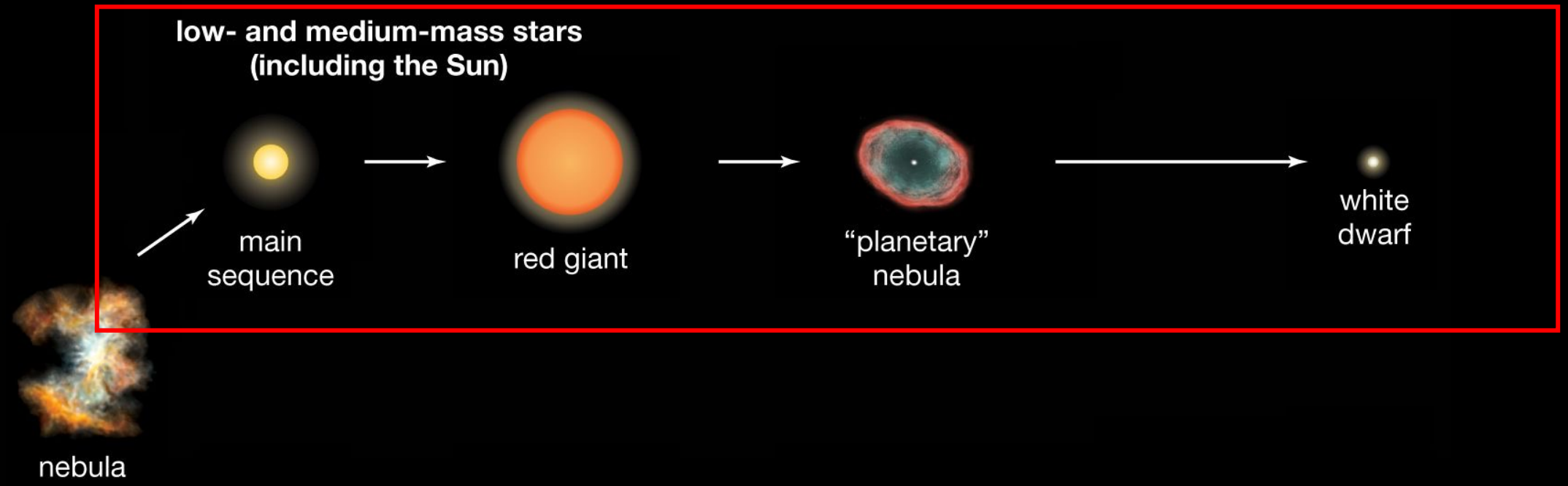

- Final Stage of evolution
- Hot cores of sunlike stars
- Dense

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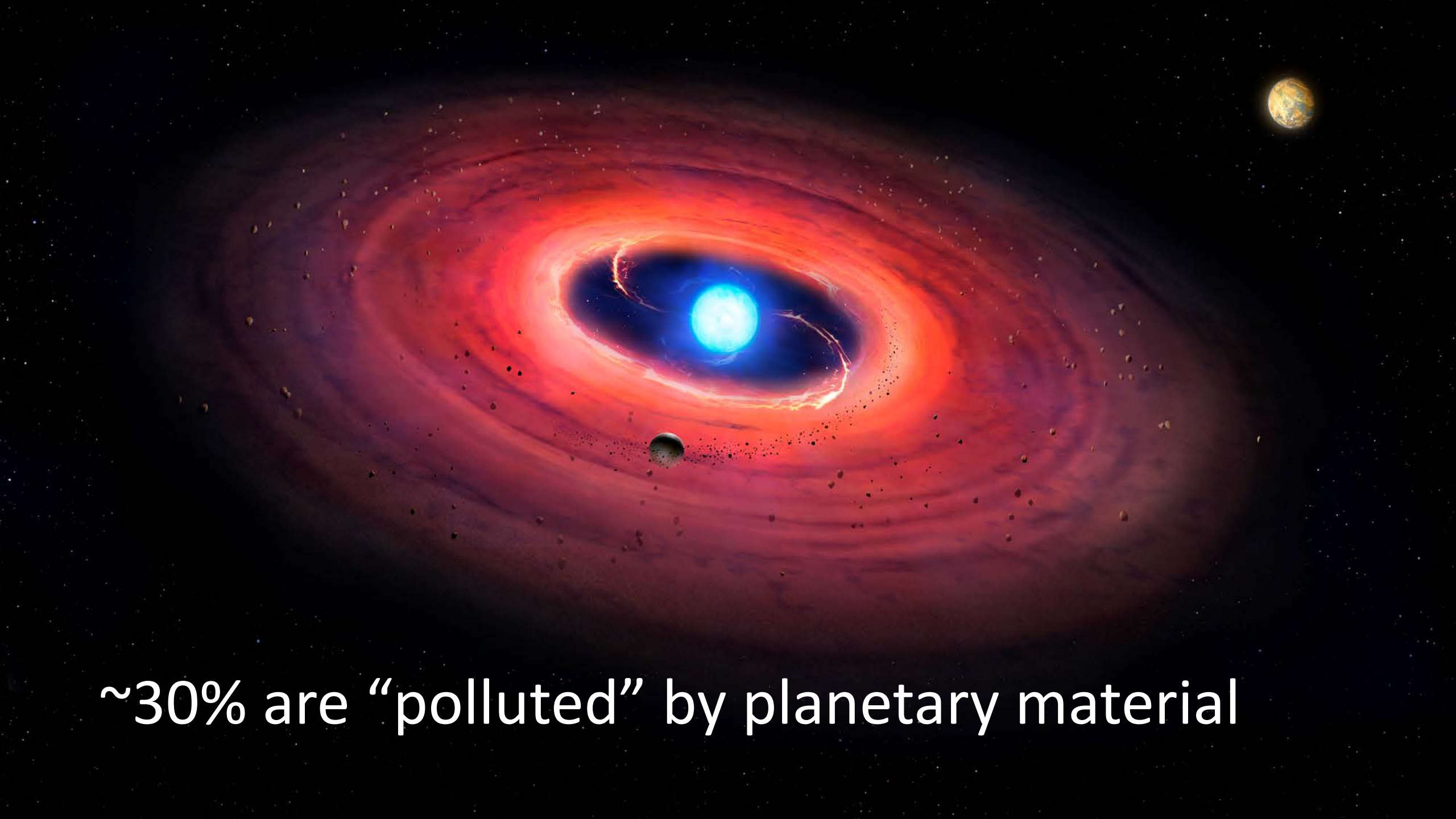
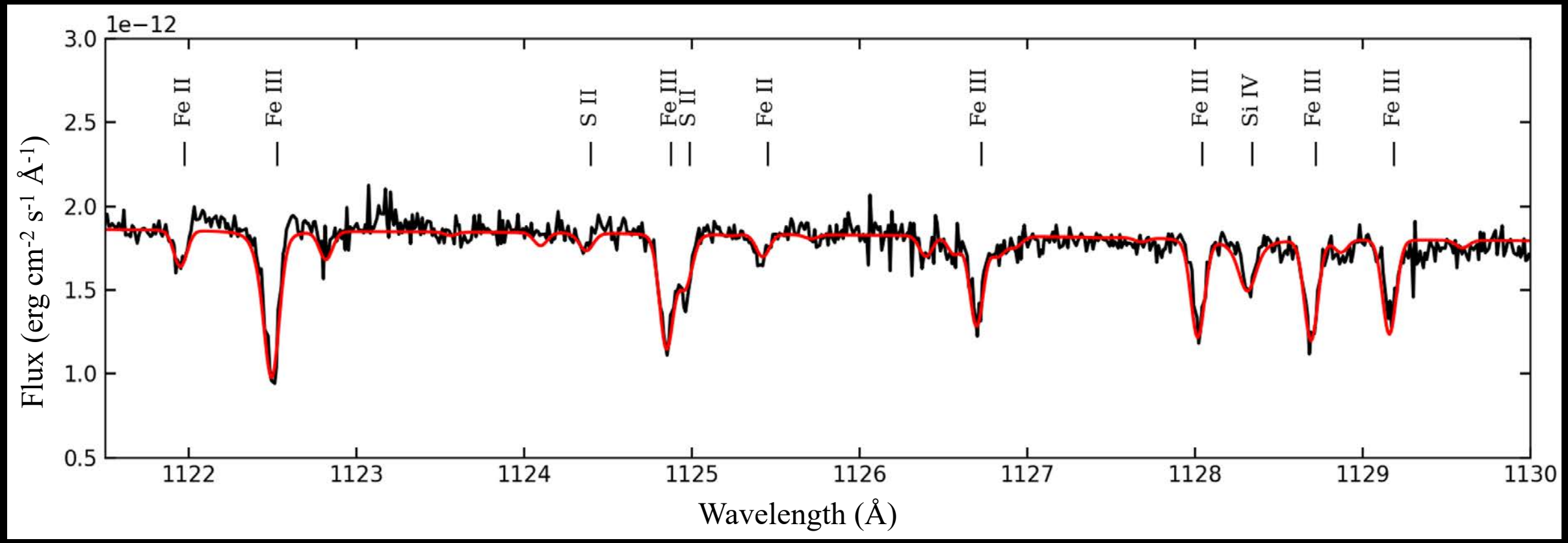


~30% are “polluted” by planetary material

White Dwarfs as a Planetary Laboratory



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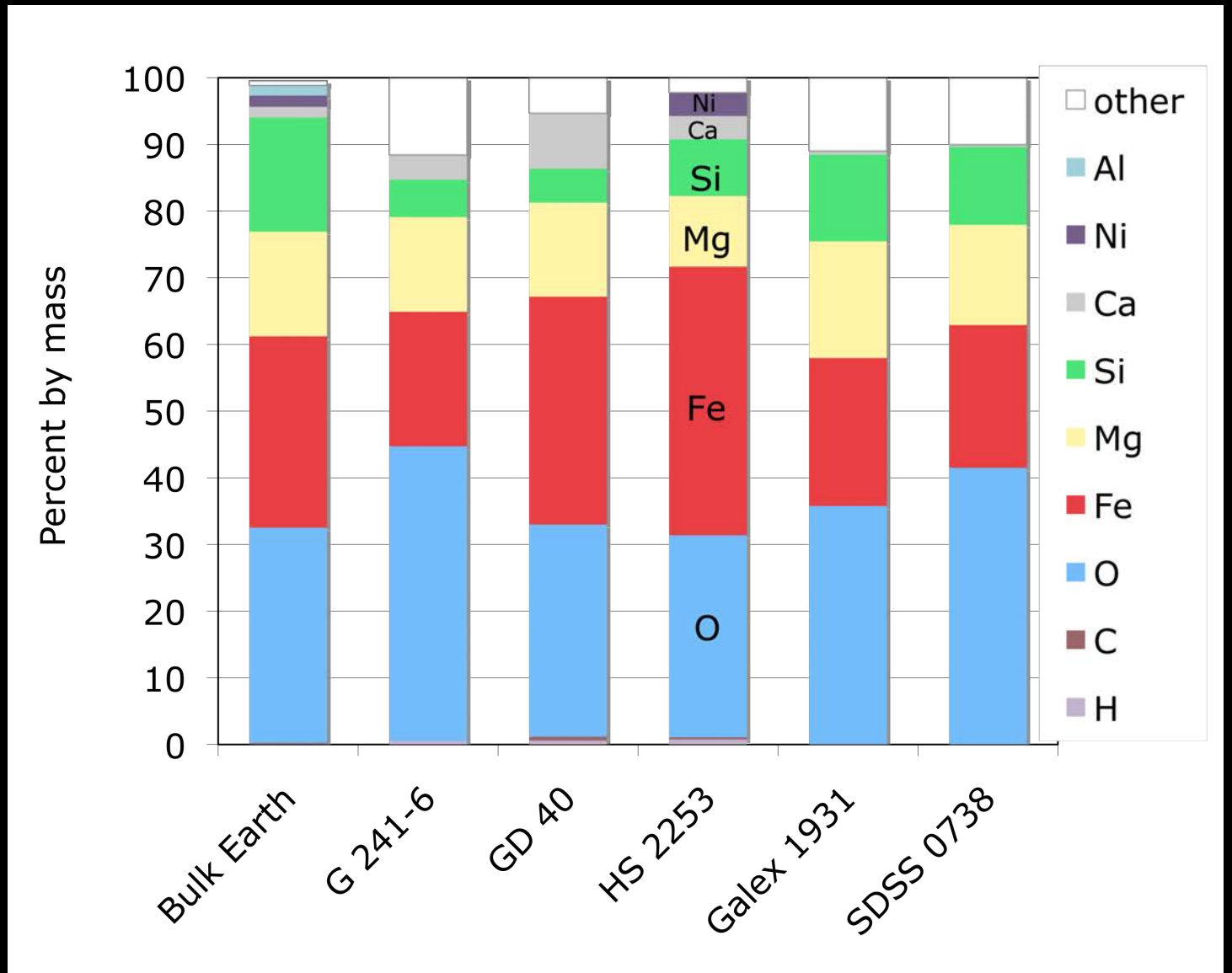
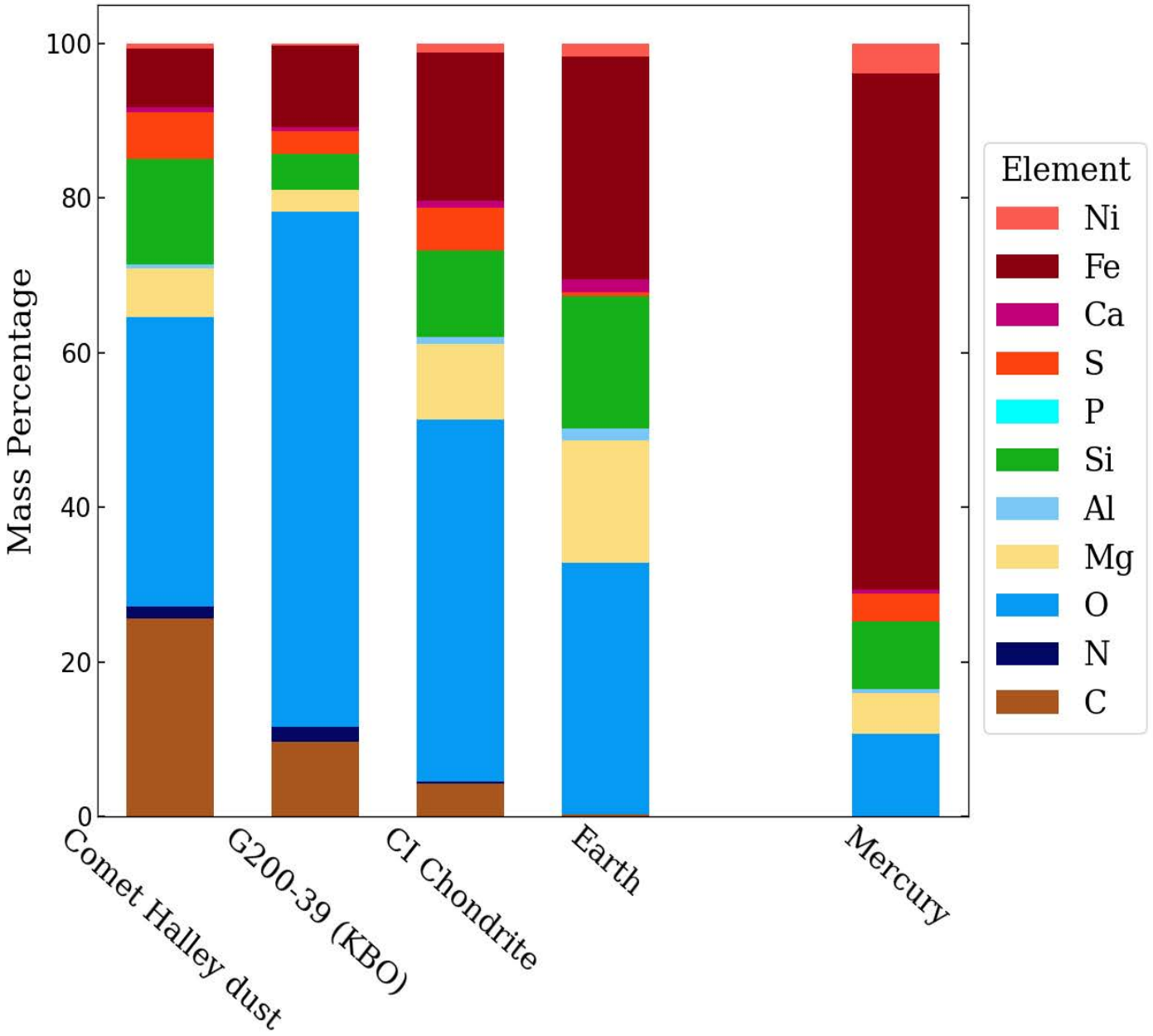


A Strange Composition



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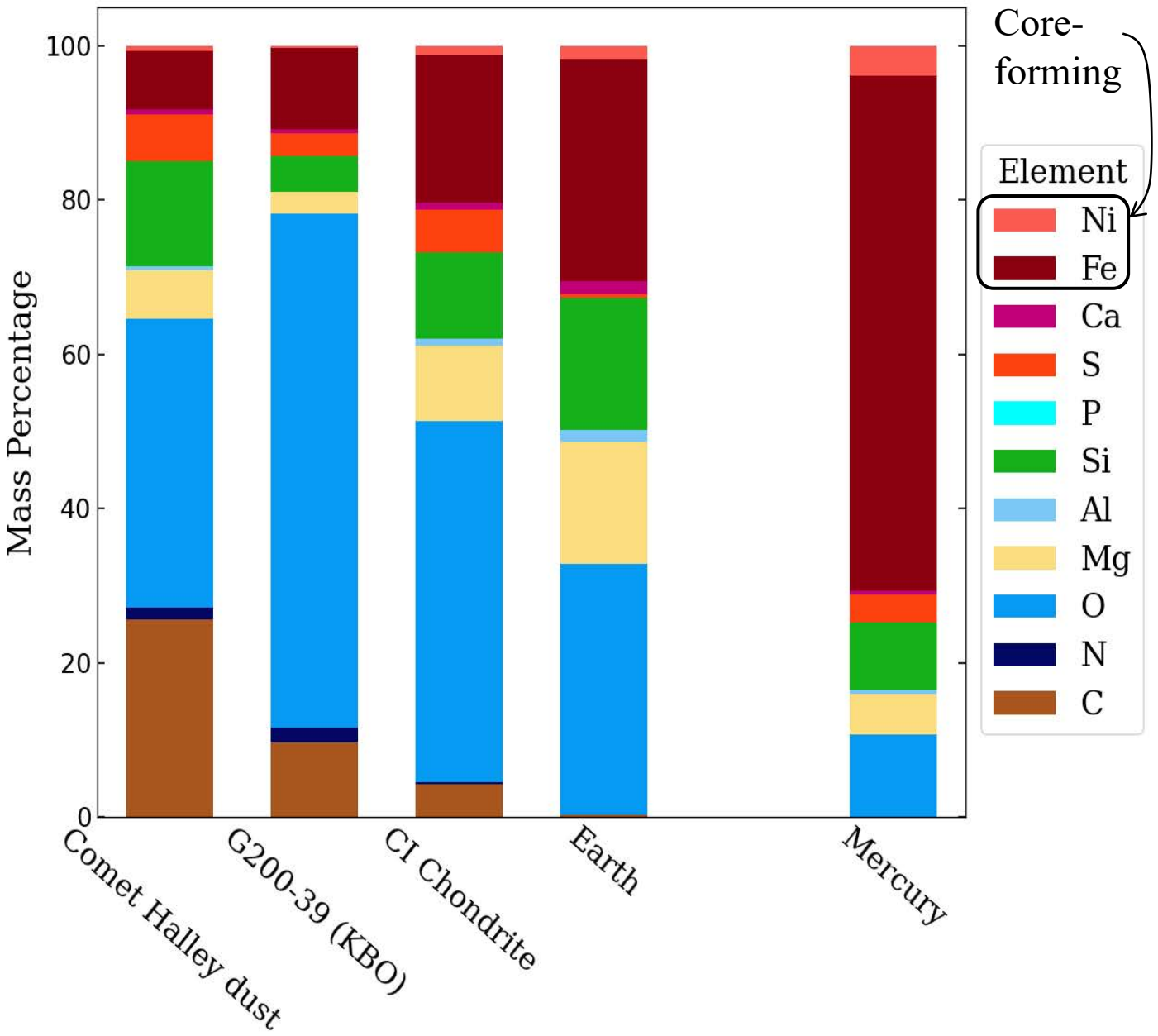

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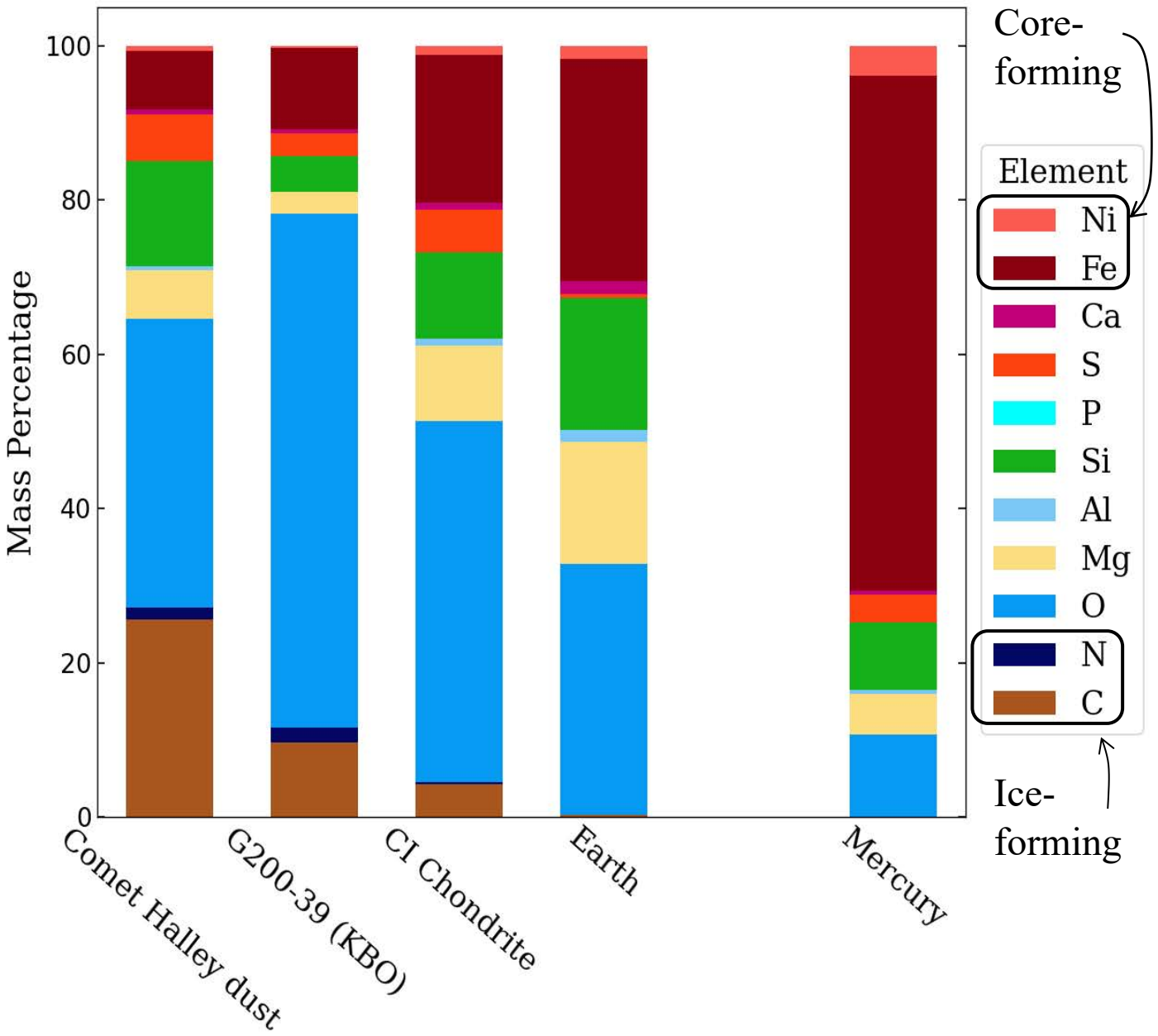

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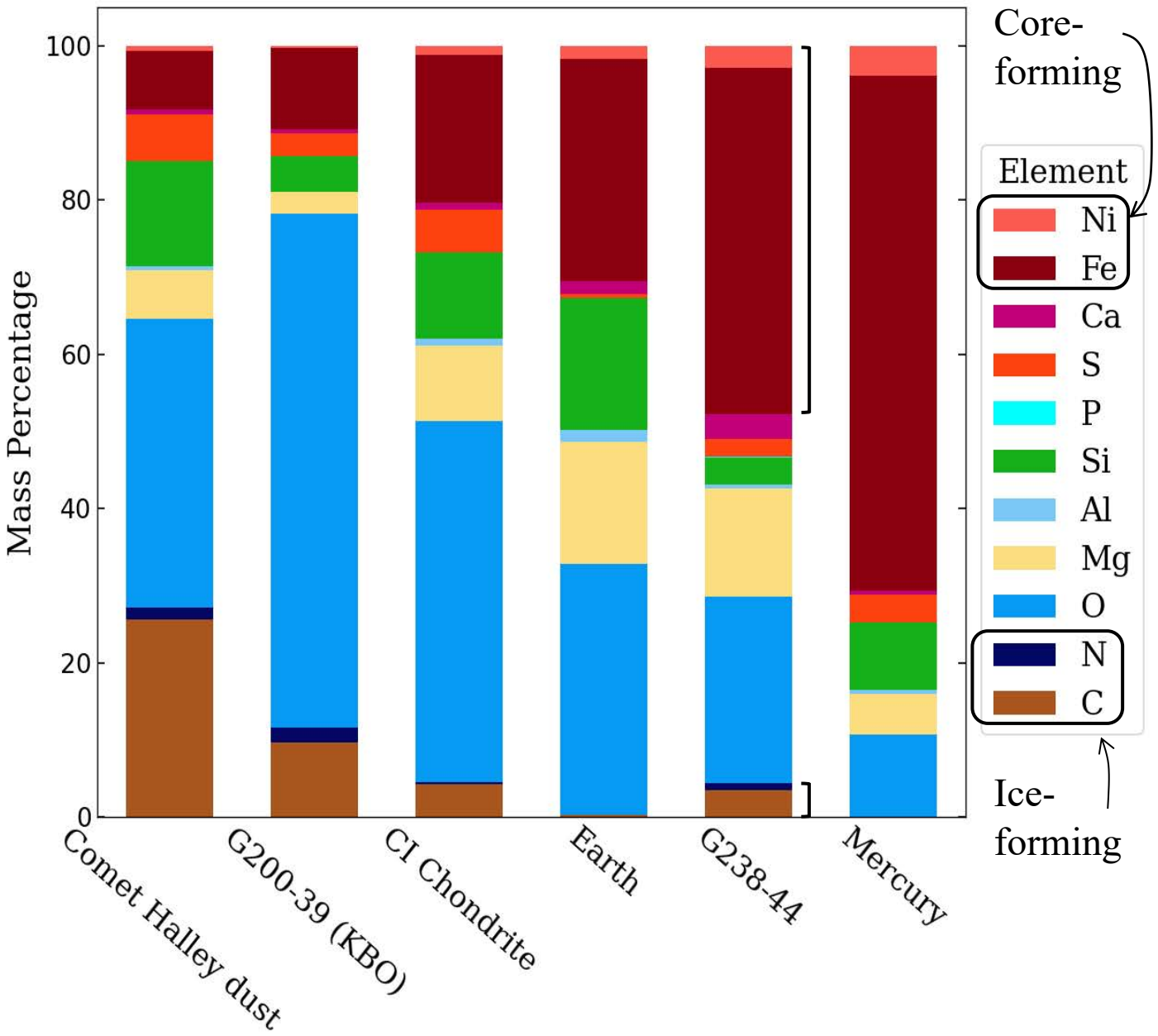
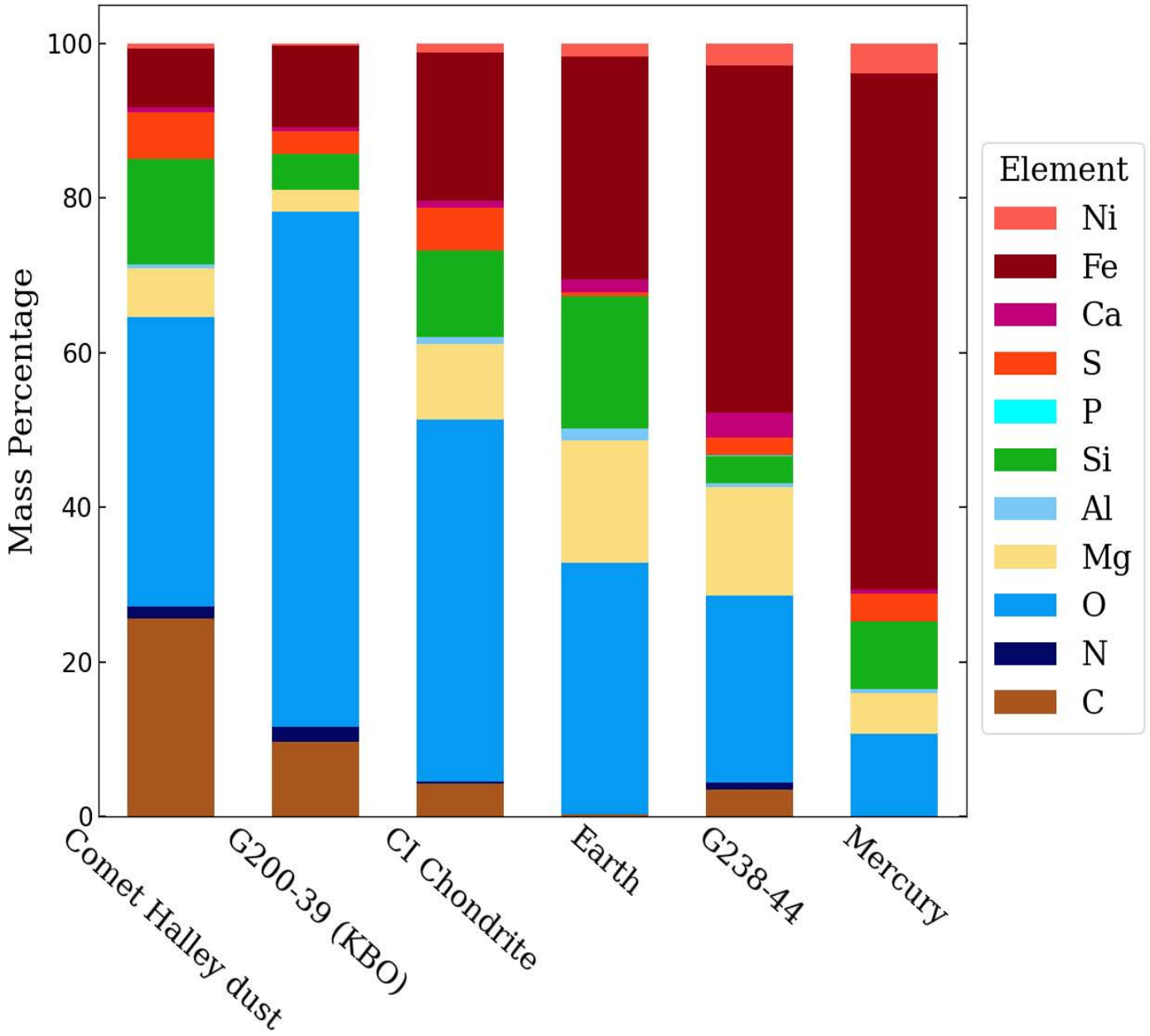


A Two Body Interpretation

- Mix of icy and rocky-metallic material

Best fit:

- 1 part icy KBO-like
- 1.7 parts metal-dominated Mercury-like



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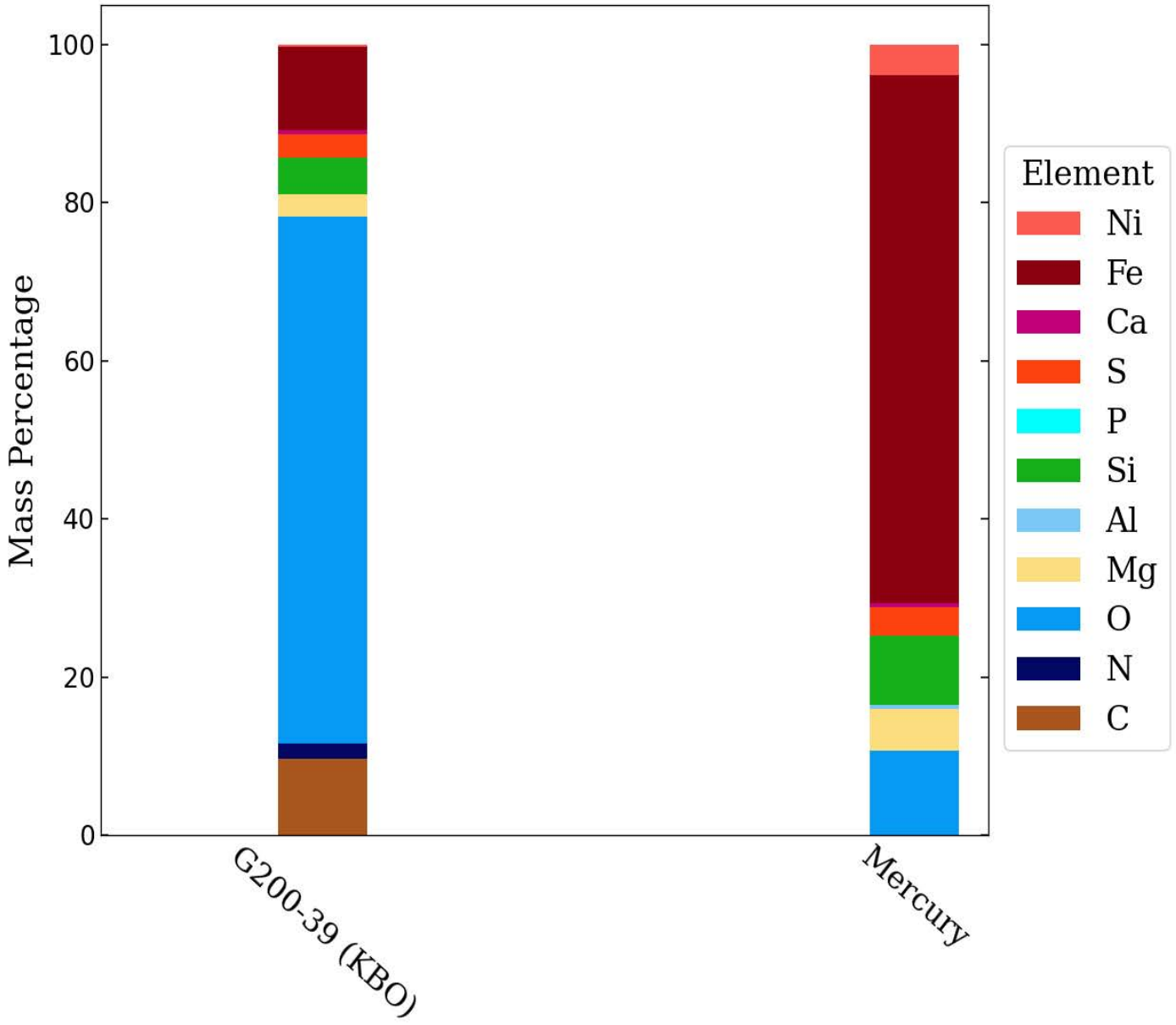
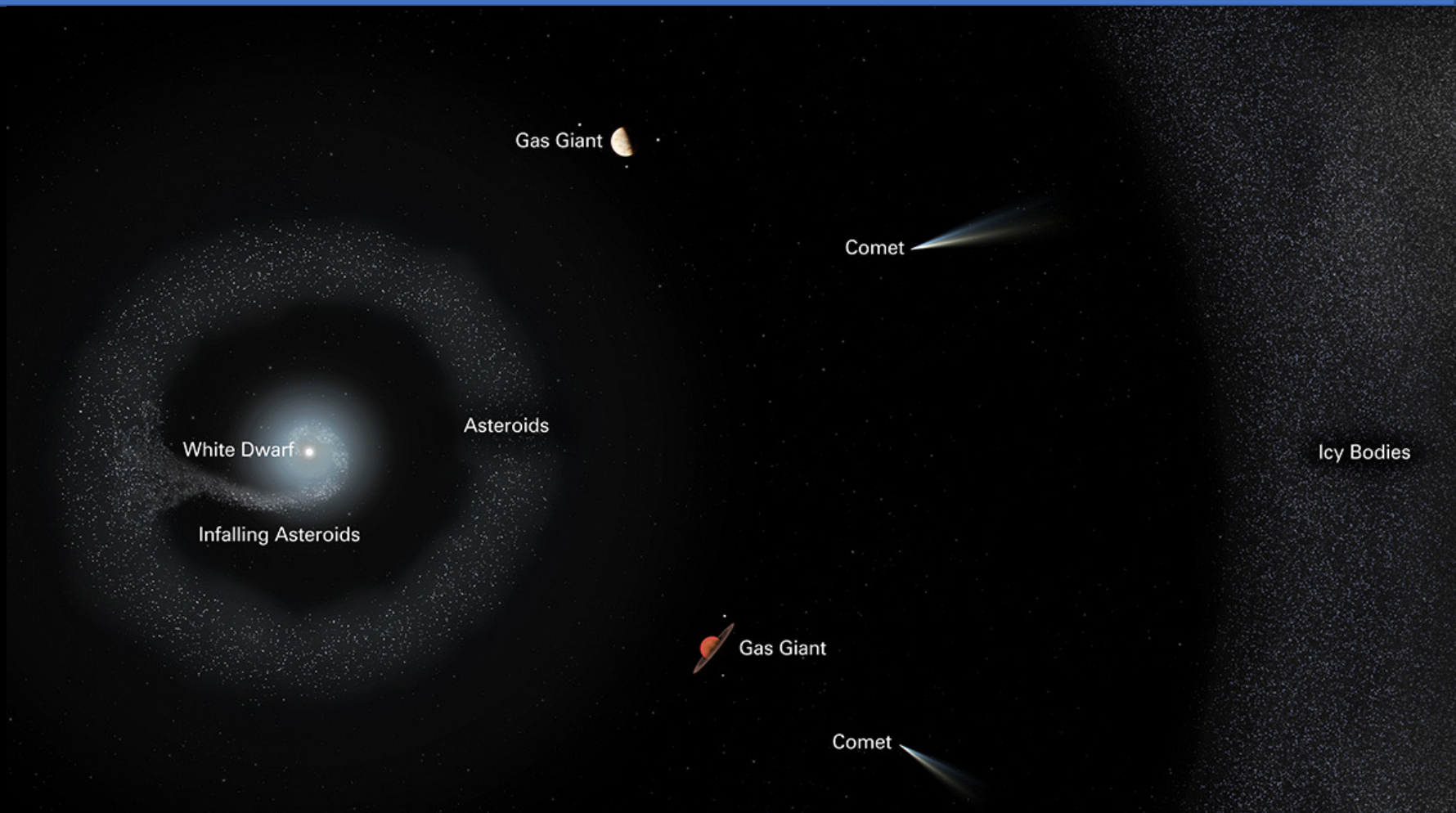


Conclusions and Implications

- No solar system analog
- Simultaneous accretion of rocky and icy material
- Post main-sequence chaos
- Rocky and icy material are necessary for life



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