

**Limits on OH 5 GHz Maser
Emission from an OH/IR Star and a
Proto-Planetary Nebula**

Starring

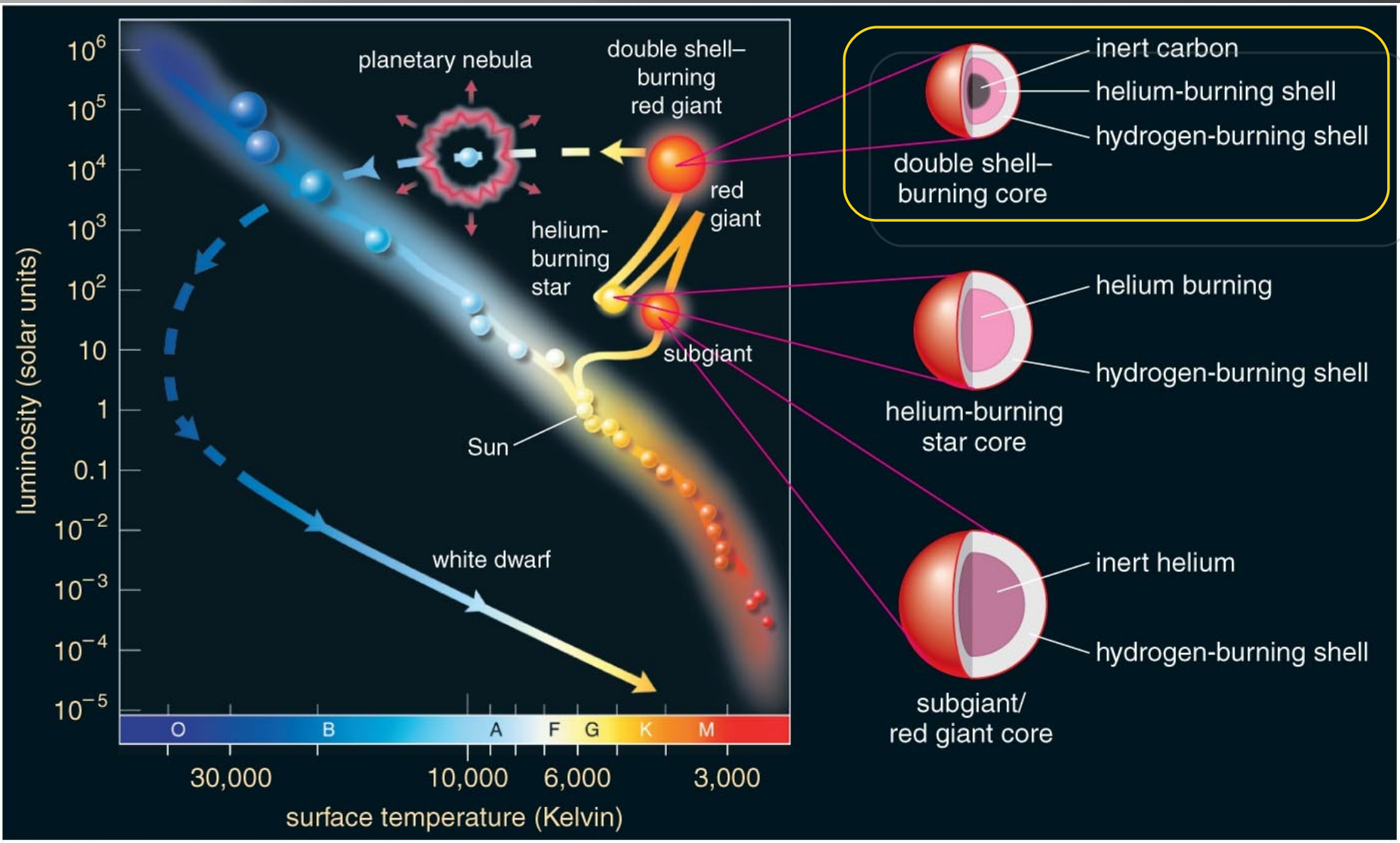
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Evolutionary Track of a Solar-Mass Star



OH/IR Star: Asymptotic giant branch star with dust-rich wind (hence infrared bright) and 18 cm OH maser emission.

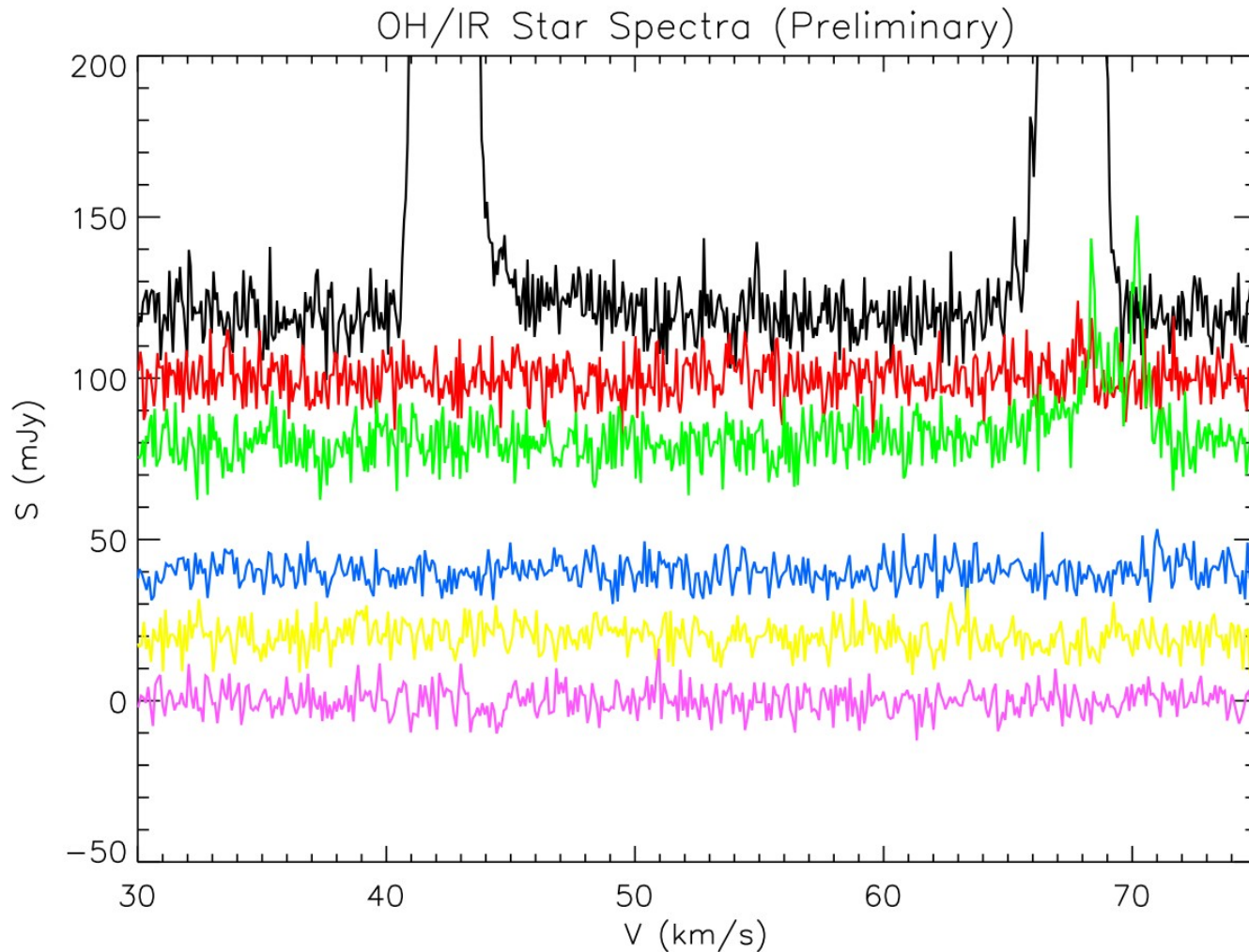
Observations with Arecibo

- OH/IR star (IRAS 16260+3454) in 18 cm (on, L-band) and 5 GHz (on, C-band)
- Calibration source (B1622+23) for 5 GHz (position switching)
- PPN (IRAS 18095+2704) in 18 cm (on) and 5 GHz (position switching, three 5 minute integrations)

Reduction process

- Calibrating the 5 GHz scale to mJy for each of the three lines and each of their polarizations
- Position switching
 - Difference the on and off spectra
 - Apply noise diode calibration
 - Average the two linear polarizations
- Formed weighted average of the three integrations for each line
- Removed polynomial baseline of order 2
- Plotted intensity vs. velocity

Results: OH/IR Star

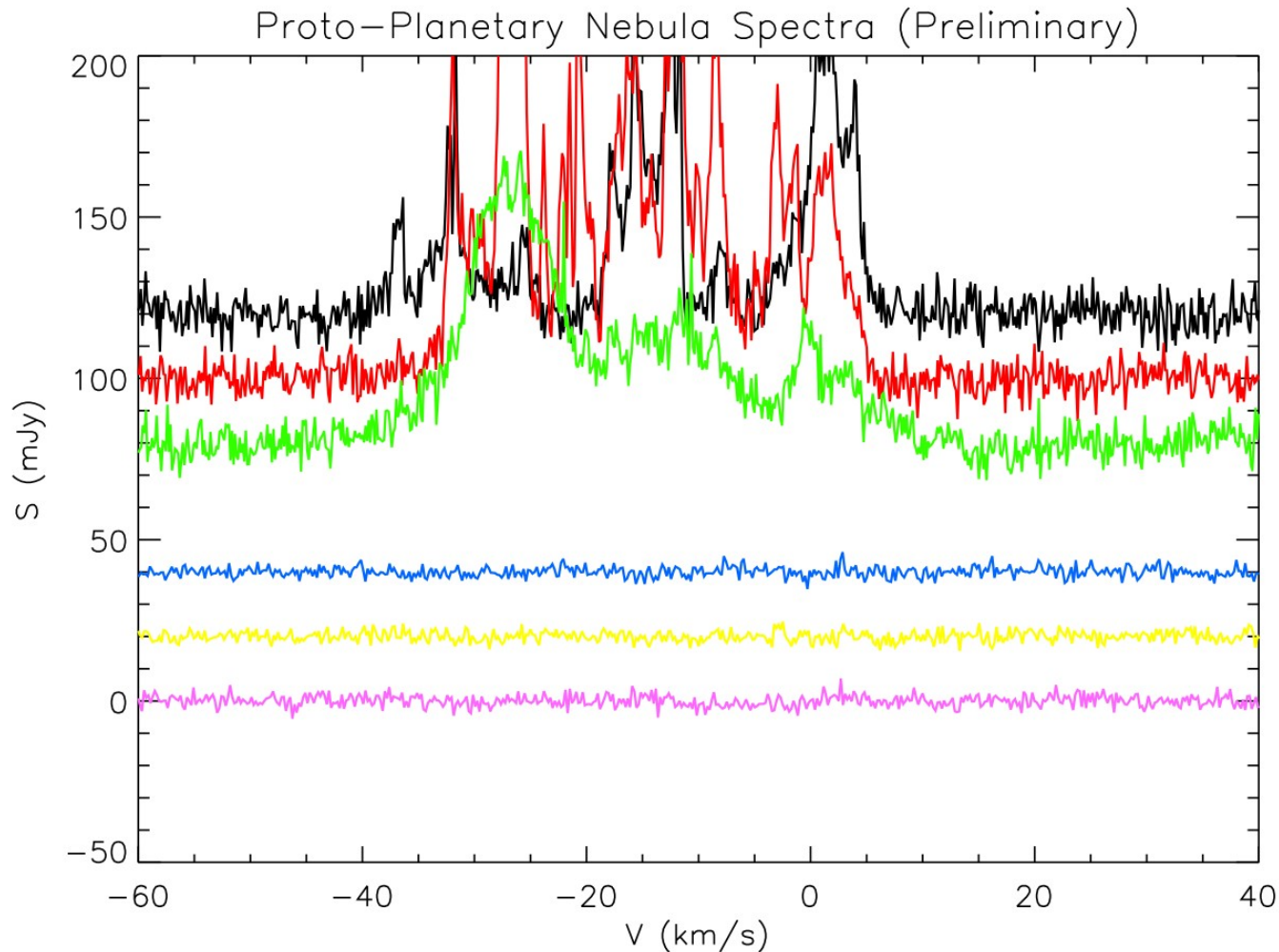


Lines Plotted

- 1612.2 MHz
- 1665.4 MHz
- 1667.4 MHz
- 4660.2 MHz
- 4750.7 MHz
- 4765.6 MHz

(Note: Scans displaced vertically by 20 mJy for display)

Results: Proto-Planetary Nebula



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- 1612.2 MHz
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Cat's Eye Nebula

*Example of
young
planetary
nebula with
bipolar
structure
(optical/X-ray
image)*

