
Technology Issues

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OST Science Cases – Required Spectral Resolution

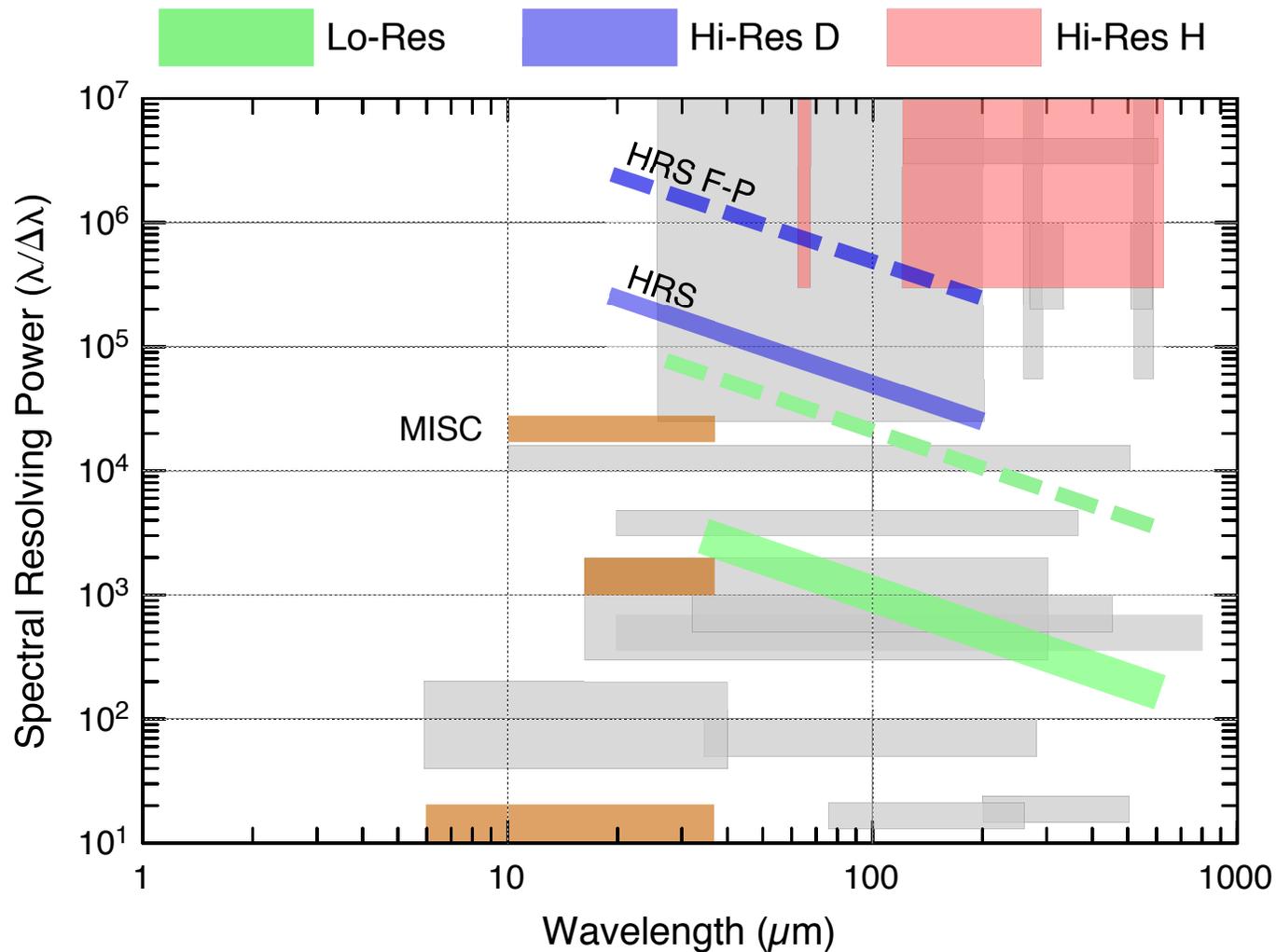
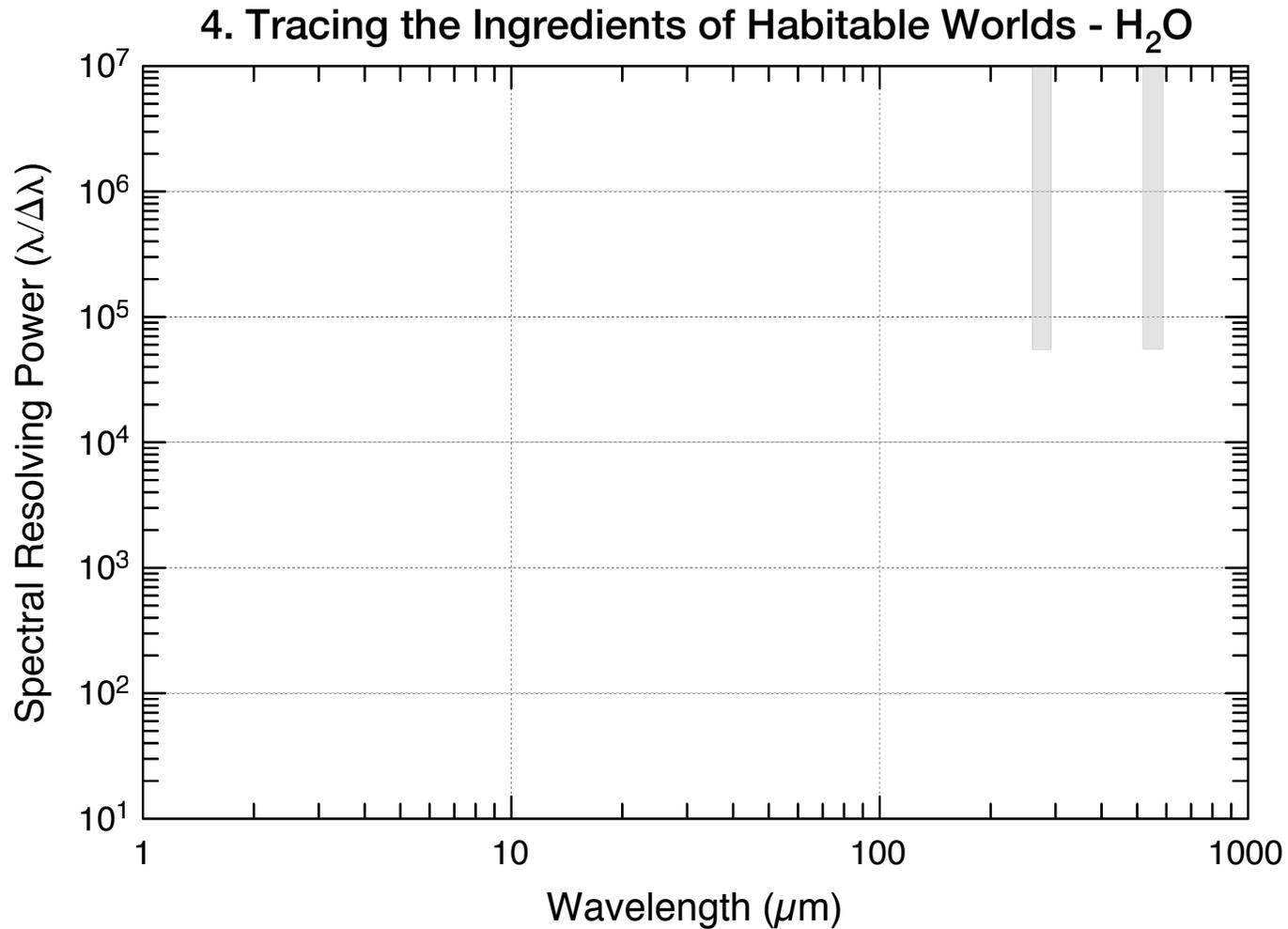


Figure:
G. Melnick

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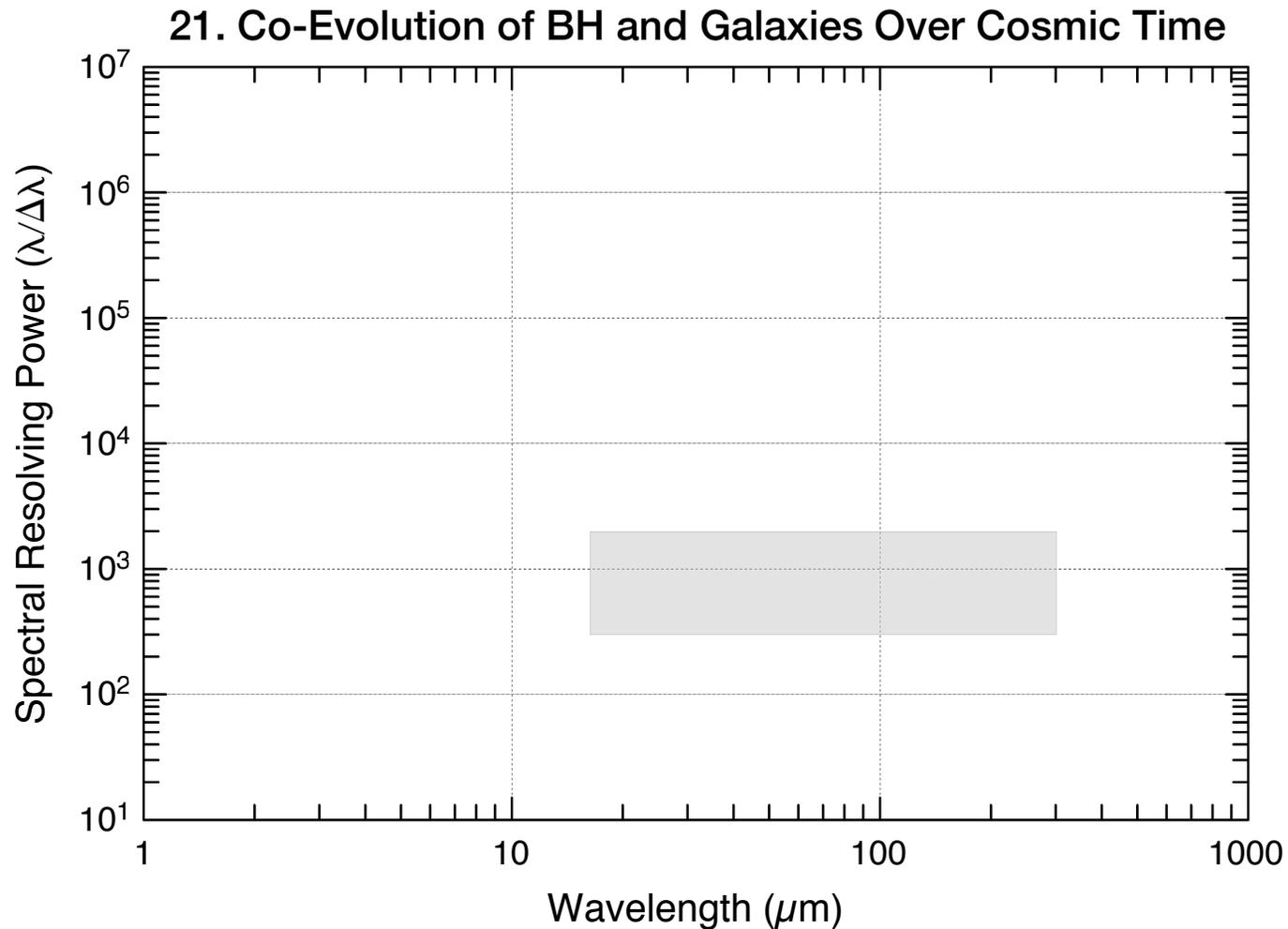


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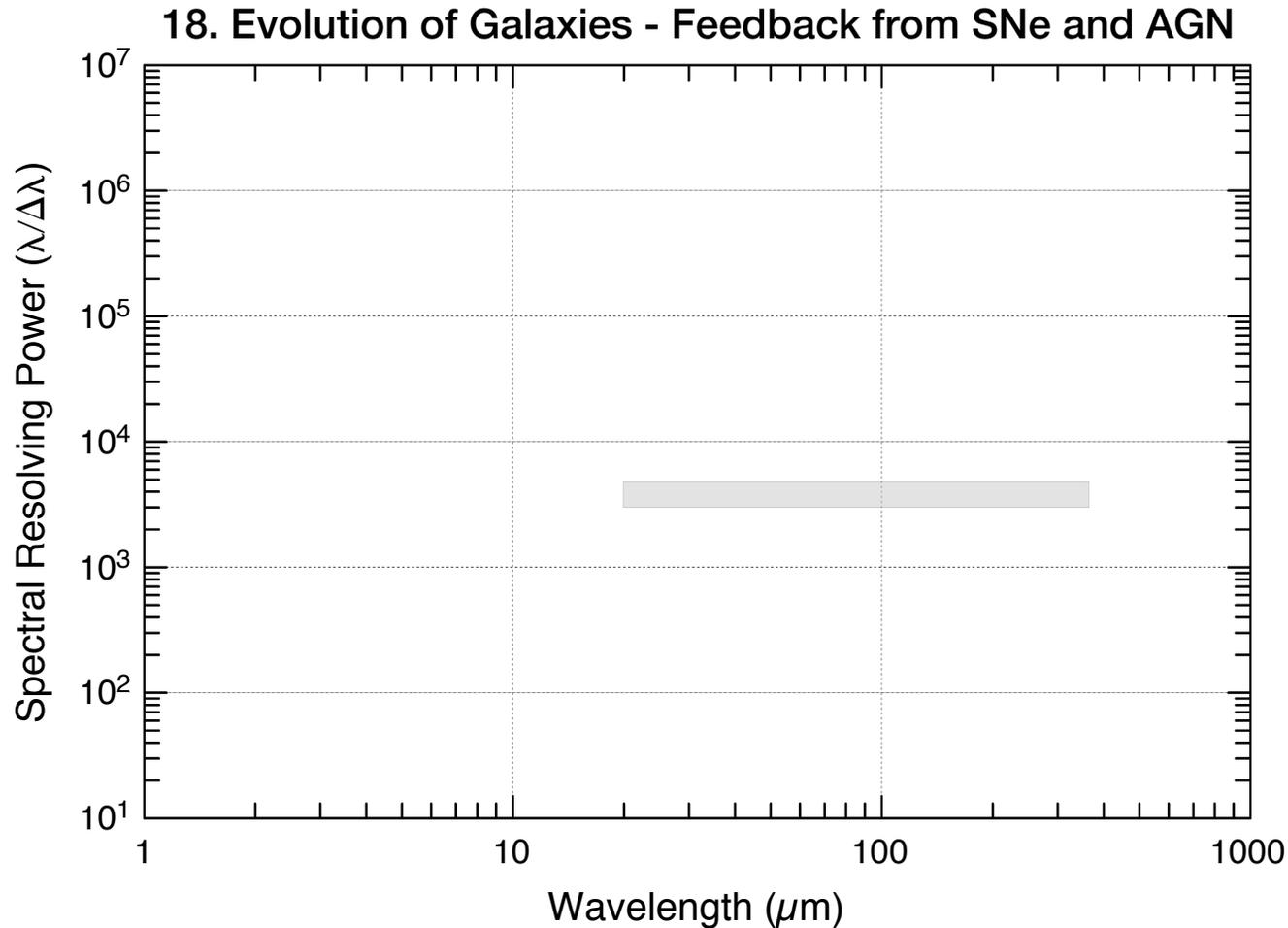
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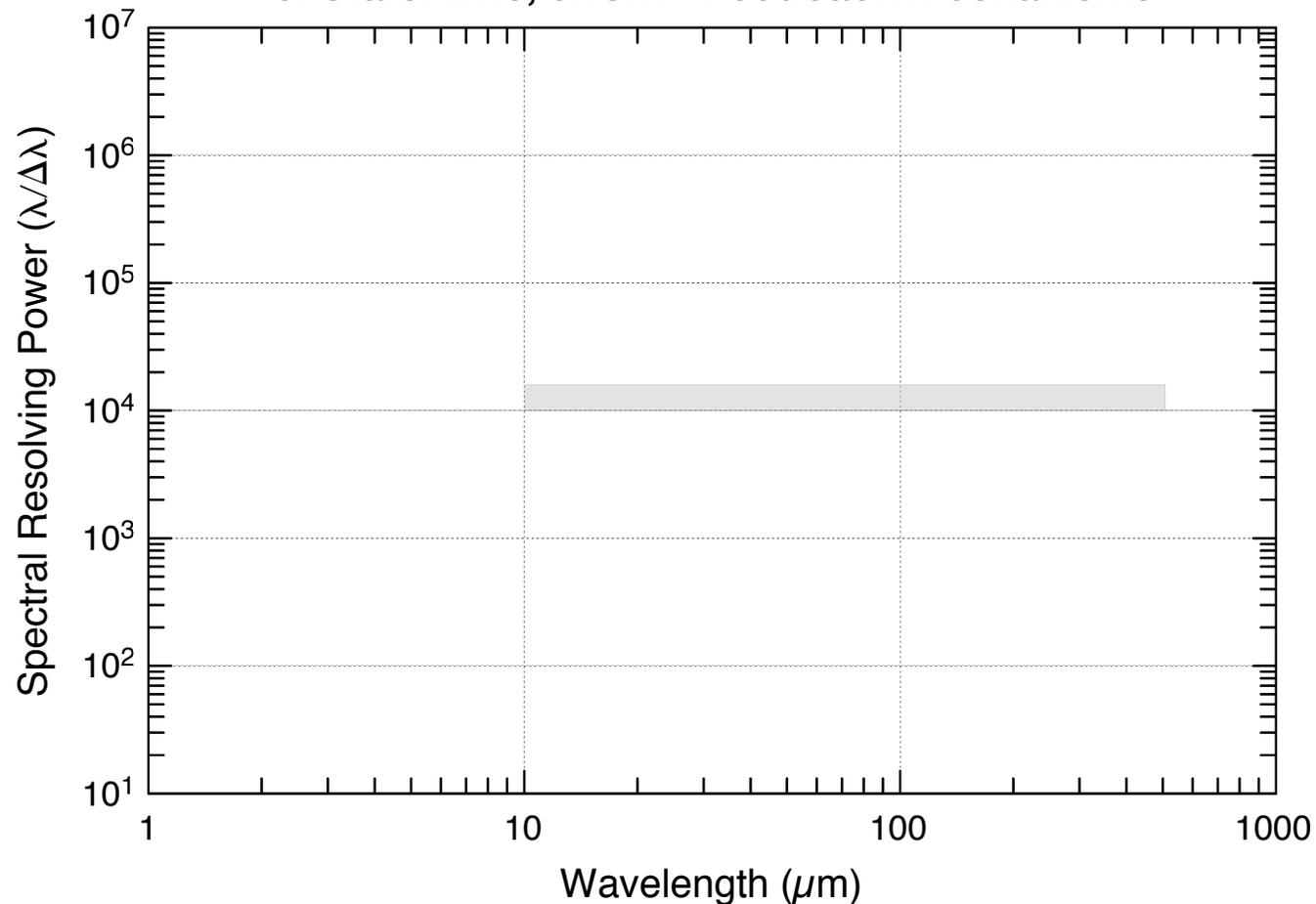


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5. Stars, BHs, & ISM - Feedback Mechanisms



Detector/readout issues

- We have 3 different FIR detector technologies (TES, MKIDs, Quantum Capacitance Det.)
- Current mux schemes require large bandwidth ($\sim 1\text{MHz}/\text{pixel}$), even though fundamentally you need $\sim 1\text{kHz}$
 - problems w/ power dissipation at 4K
 - significant need for power at 300 K ($\sim 10\text{mW}/\text{pixel}$)
- High sensitivity detectors \rightarrow low dynamic range

We don't seem to fit in 5m faring

We have a clear mass problem -> not only lightweight instruments (check materials, type of propellant, ...)

Reduce Volume and weight:

- Number of instruments
- Number of pixels (reduce fow, spectral coverage)
- Telescope diameter
- Telescope operating temperature