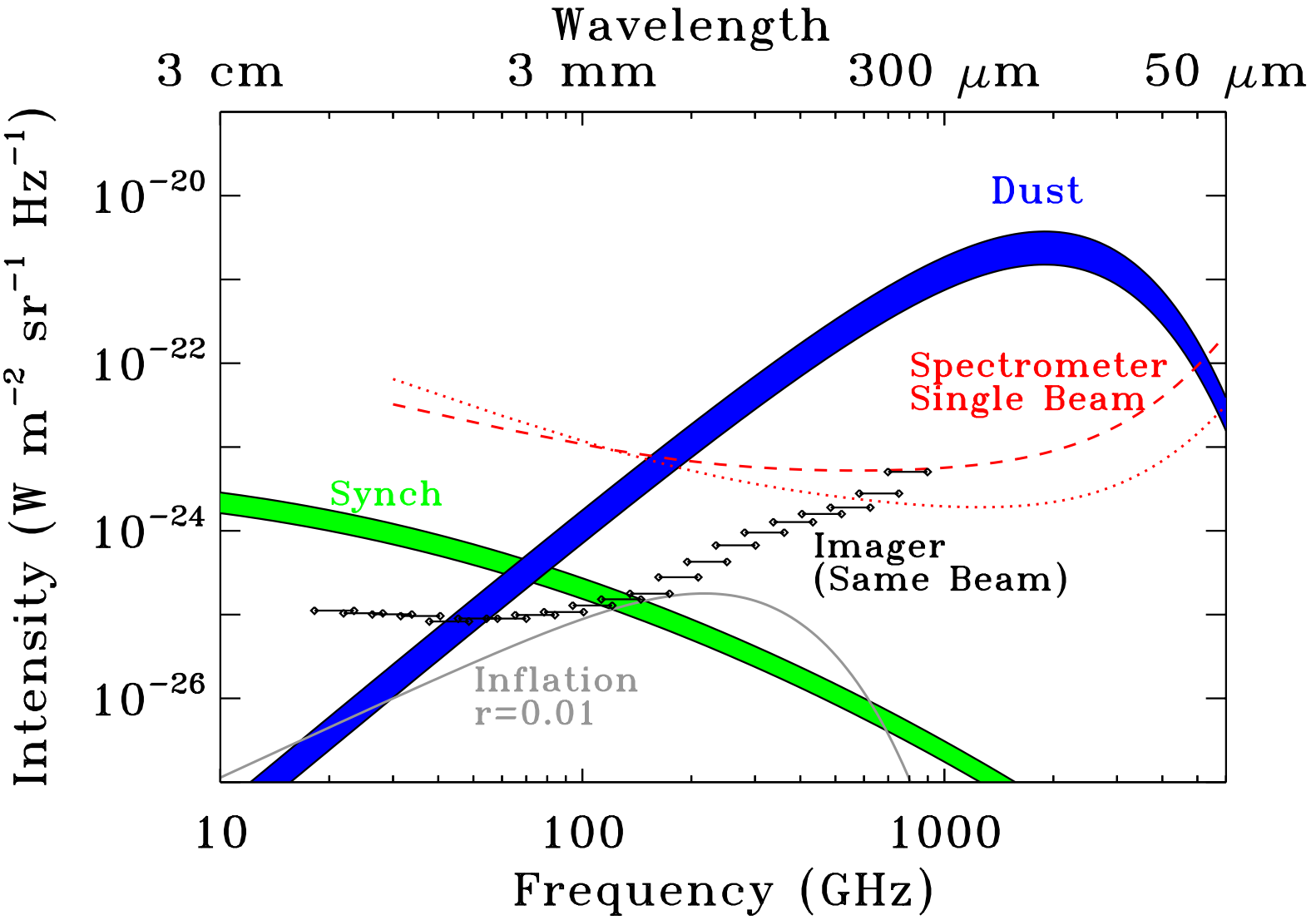
Spectrometer and Imager Sensitivity vs Foregrounds



Spectrometer Advantages for Foreground Subtraction

Calibration and zero level

- Channel-to-channel relative calibration for (e.g.) spectral index
- Absolute zero level → fractional polarization, spectral index
- Precision calibration at frequencies above CMB dipole

Dust foreground

- Dominant foreground in imager channels with best CMB sensitivity
- Spectra over dust peak provides critical information on temperature
  - Wien displacement law
  - Eliminate confusion between spectral index & temperature
- Spectrometer S/N > 10 in 64 independent channels
  - Combine with deep maps from imager for final dust model