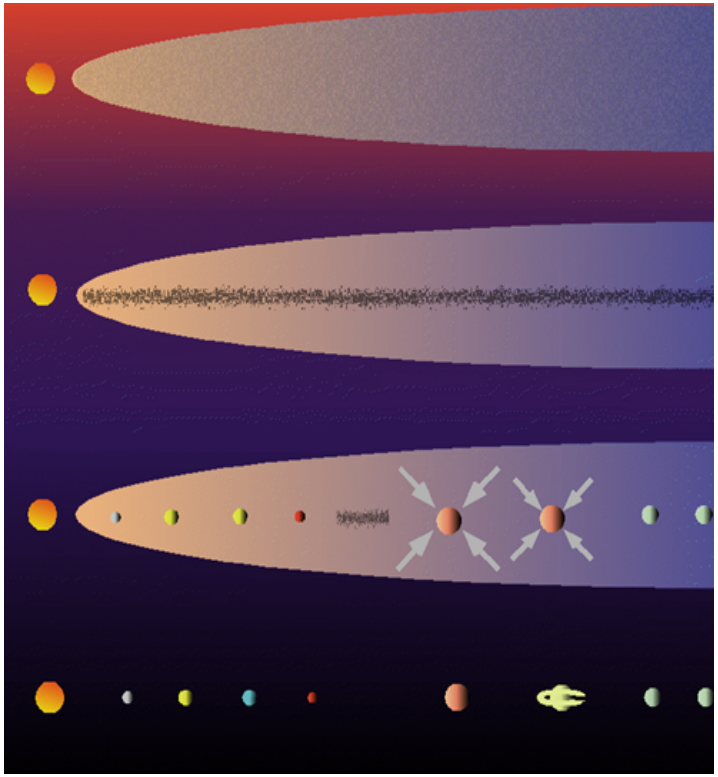
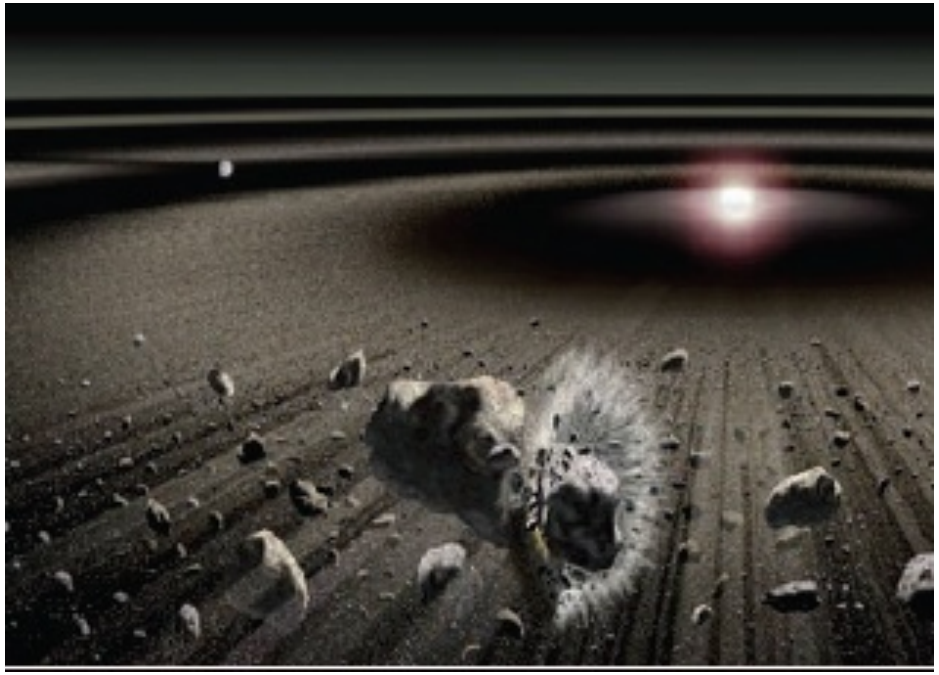
What are the conditions for stellar and planetary formation ?

- Evolution of planetary systems
- Characterization of exoplanets





→ **Mid- and Far-IR observations for gas and dust phases**

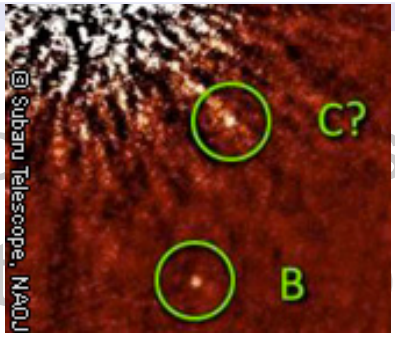
SPICA
Space Infrared Telescope for Cosmology and Astrophysics

Key Targets

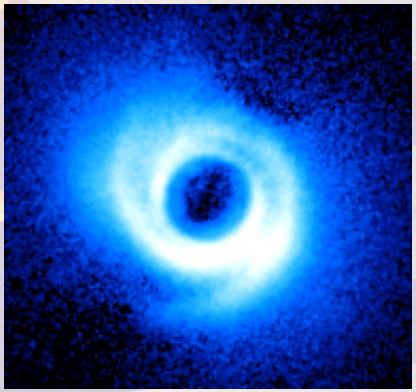
What are the conditions for stellar and planetary formation ?

- Evolution of p systems
- Characterizat planets

Exoplanets

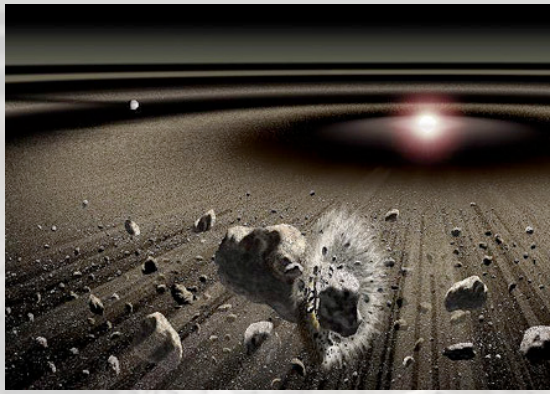


Proto-planetary Disk

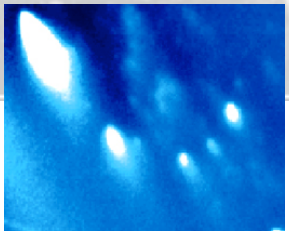


Evolution

Debri-Disk



Small bodies in Our Solar System (TNO, Comets)



Courtesy to M. Takami & Subaru/SEED team

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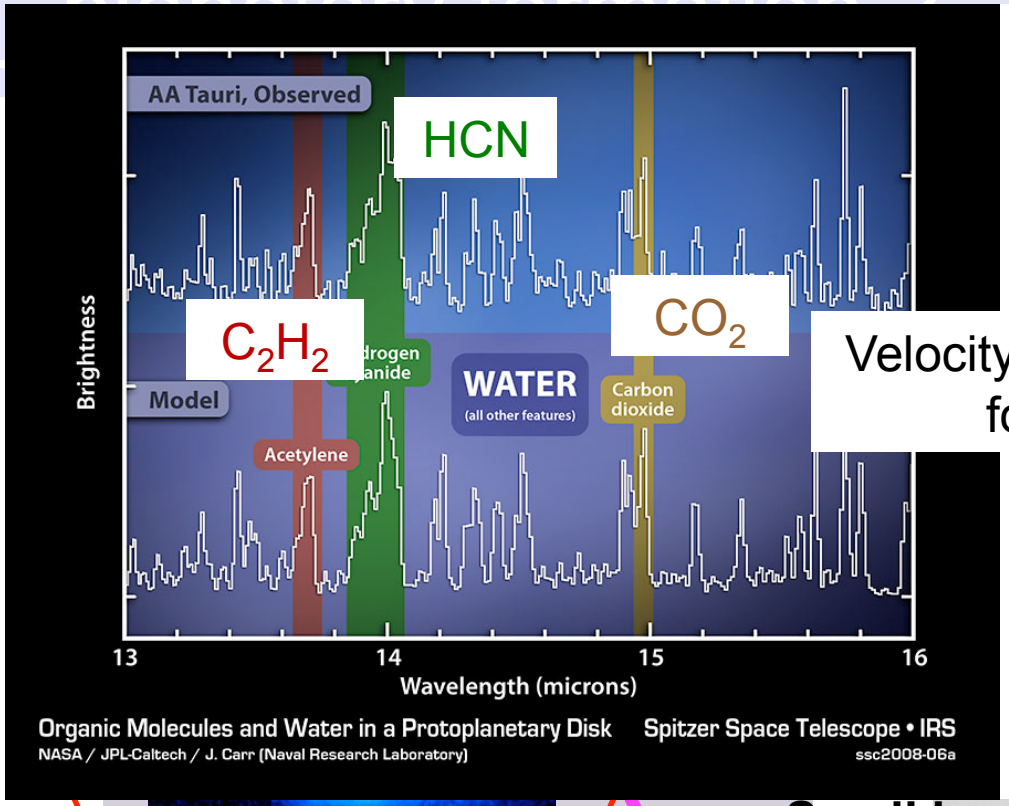
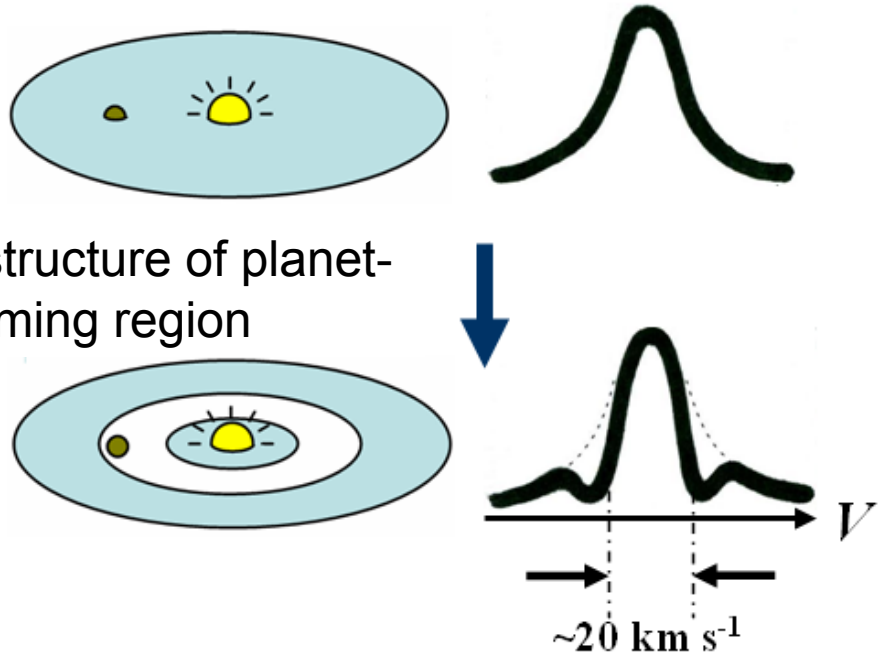
Key Targets





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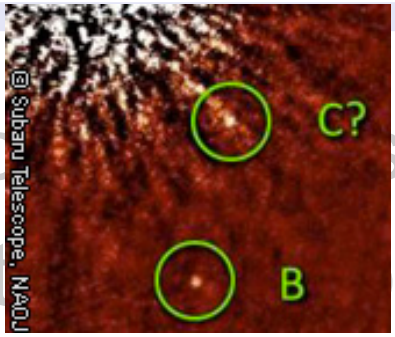

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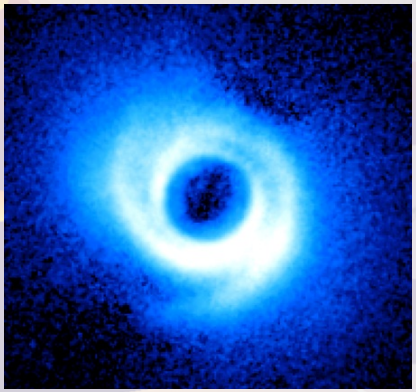
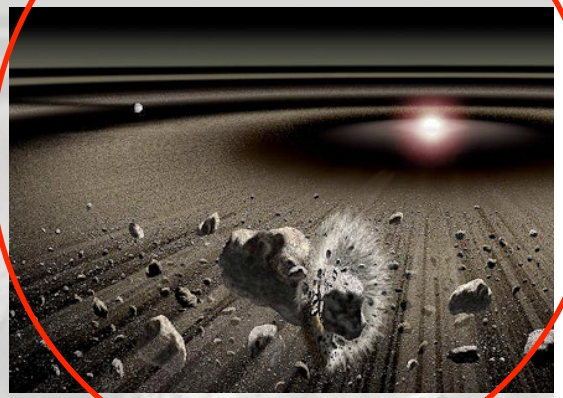


Evolution

Debri-Disk



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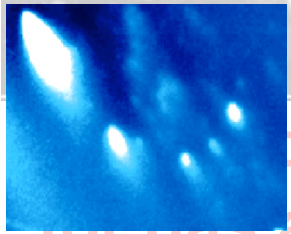
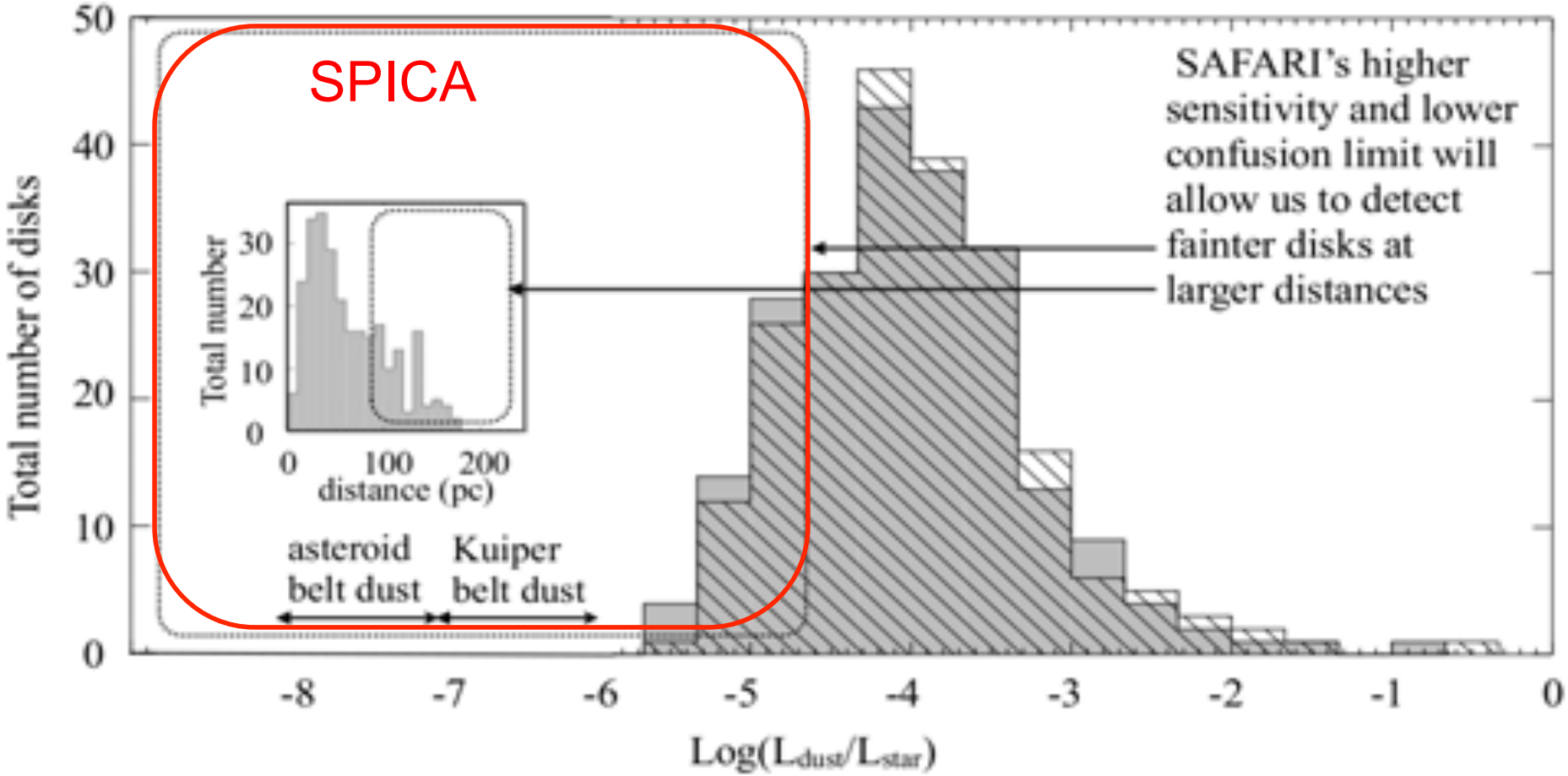
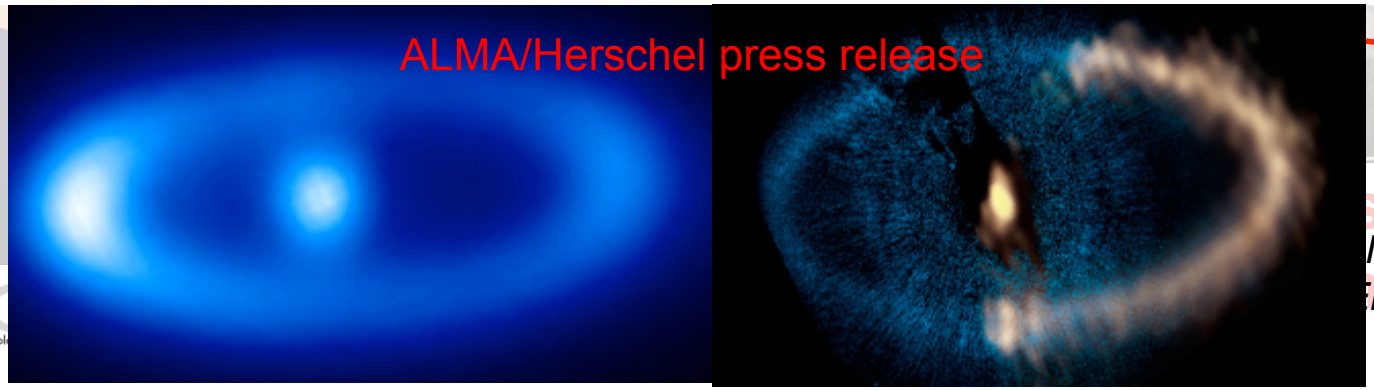


d Far-IR observations for gas and dust phases

Courtesy to M. Takami & Subaru/SEED team

What are the conditions for stellar and **Key Targets**





servations

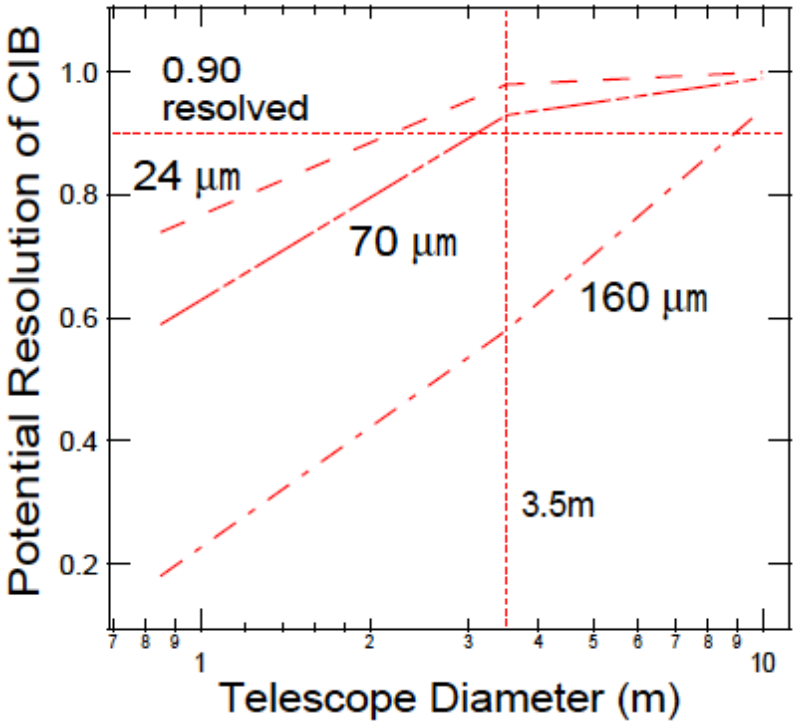
M. Takami &

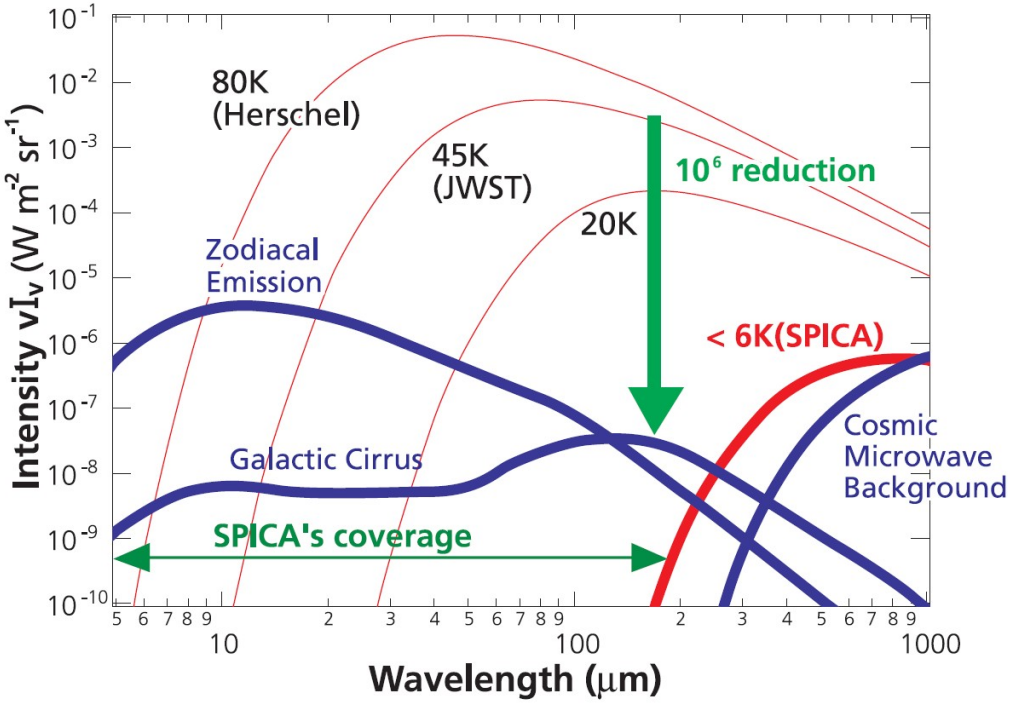
D team

SPICA
Space Infrared Telescope for Cosmology & Astrophysics

Key Science Requirements

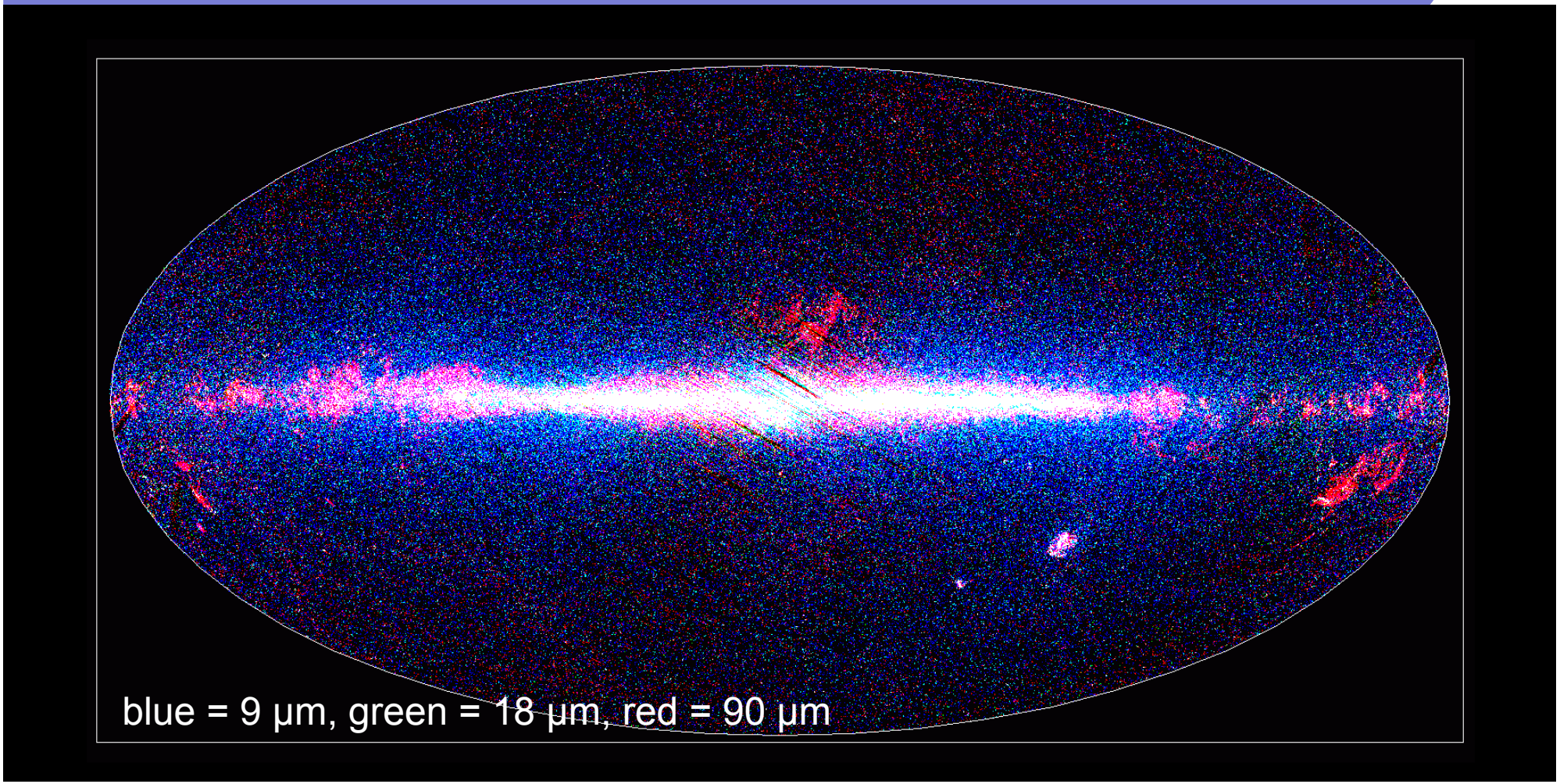
- High spatial resolution • High sensitivity
  - → 3m-class telescope → T<10K





Space Infrared Telescope for Cosmology and Astrophysics

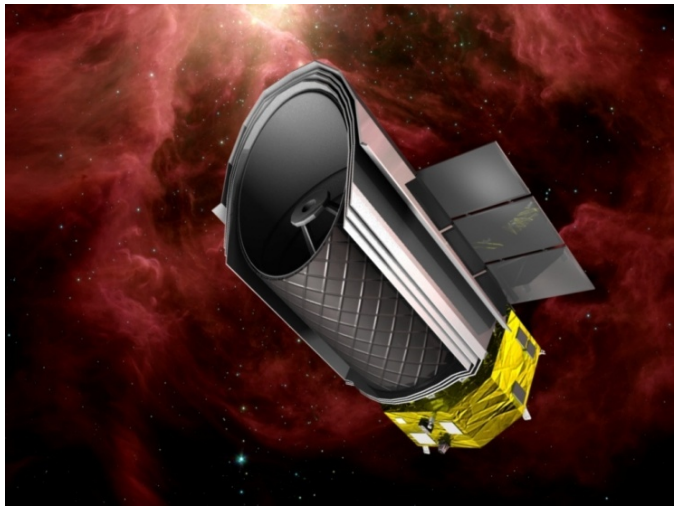
AKARI Heritage

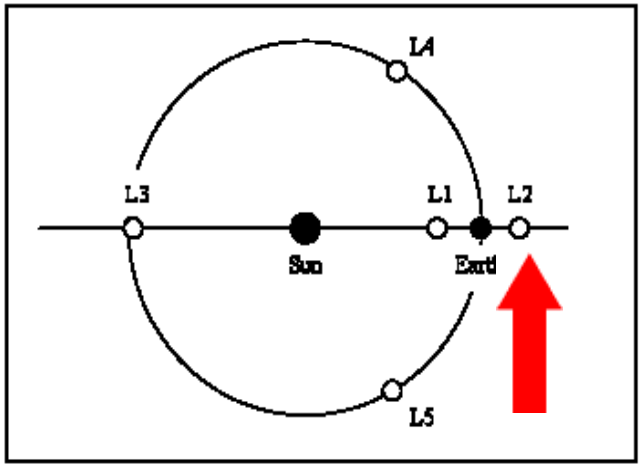


- Ideal inputs for SPICA
  - 0.9 million sources in MIR, 0.4 million sources in FIR

SPICA Mission Overview

- Telescope: 3.2m (EPD 3.0m), 6 K
  - Superior Sensitivity
  - Good spatial resolution
- Core wavelength: 5-210 μm
  - MIR Instrument
  - Far-Infrared Instrument (SAFARI)
- Orbit: Sun-Earth L2 Halo
- Mission Life
  - 3 years (nominal)
  - 5 years (goal)
- Weight: 3.7 t
- Launch: 2022
- International mission
  - Japan, Europe, Korea, Taiwan, (USA)





SPICA
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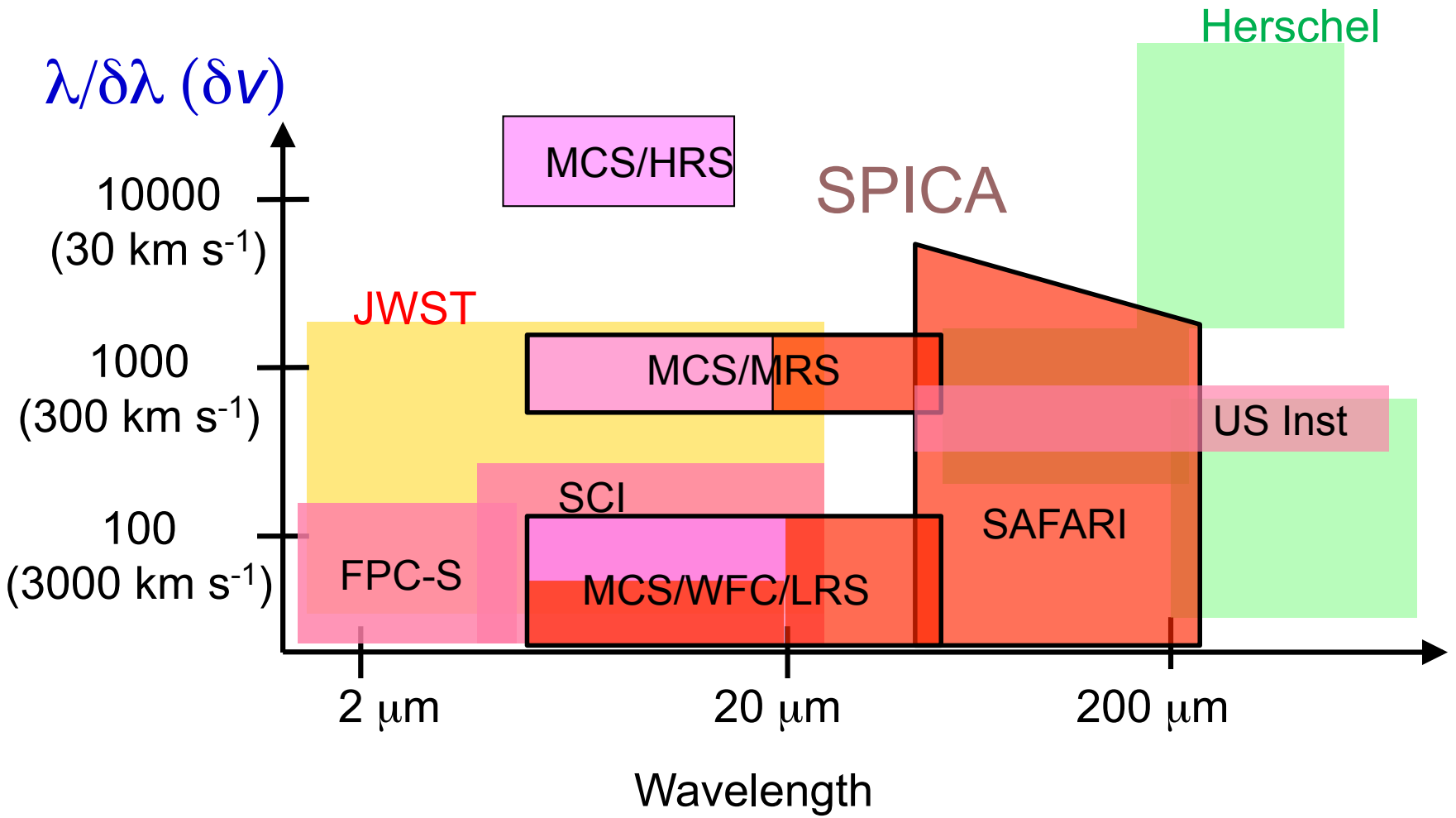
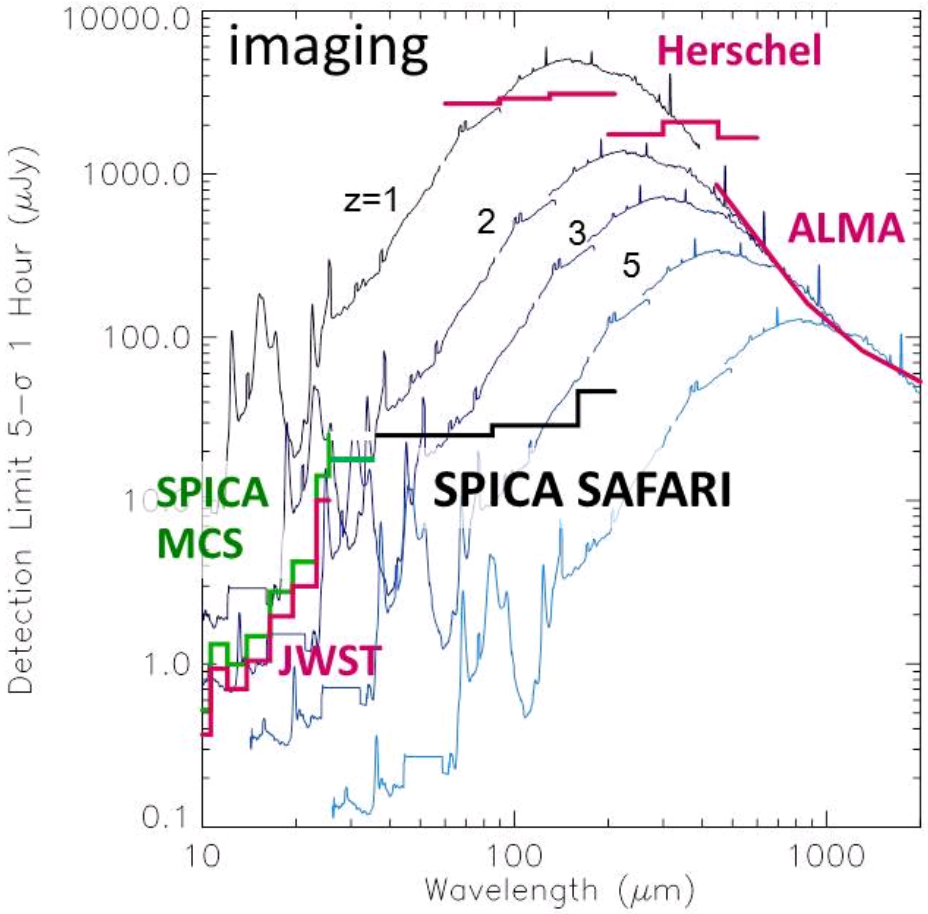
Focal Plane Instruments
Wavelength coverage vs Resolving Power

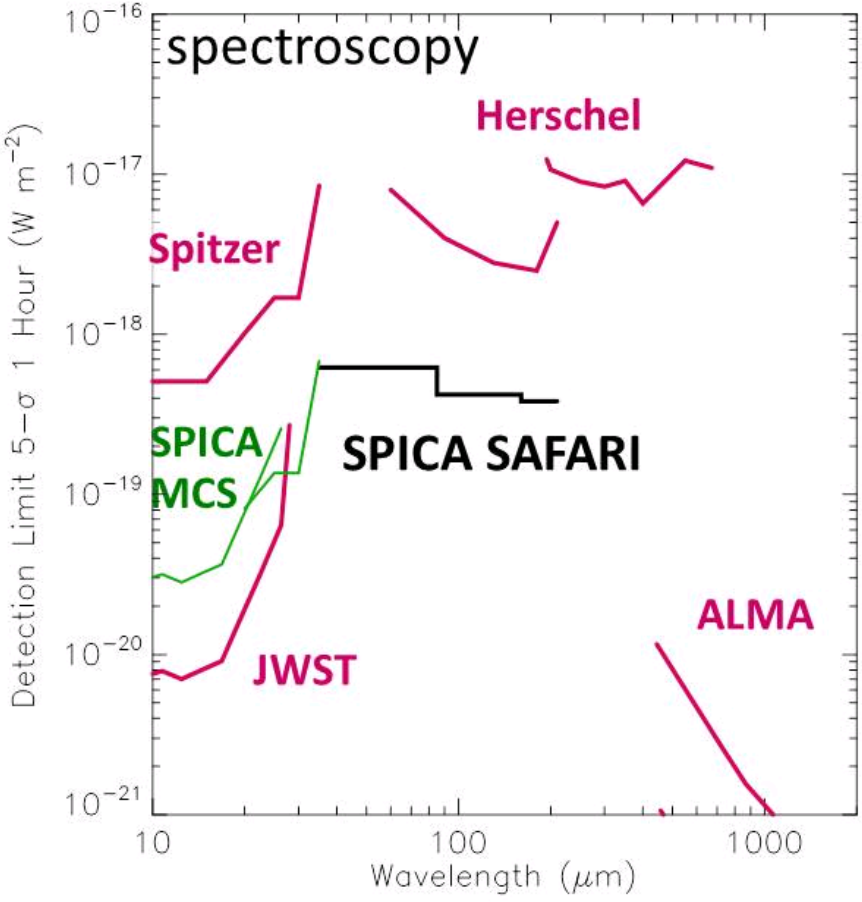


SPICA Space Infrared Telescope for Cosmology and Astrophysics

Unique Capability of SPICA/FPIs

Huge Gain of Sensitivity





Space Infrared Telescope for Cosmology and Astrophysics