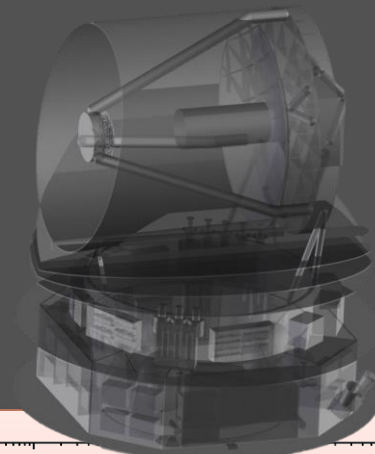




# SPICA/SAFARI Fact Sheet



## SAFARI Overview

- Four band *grating spectrometer*
- Continuous spectroscopic capability from 34-230  $\mu\text{m}$

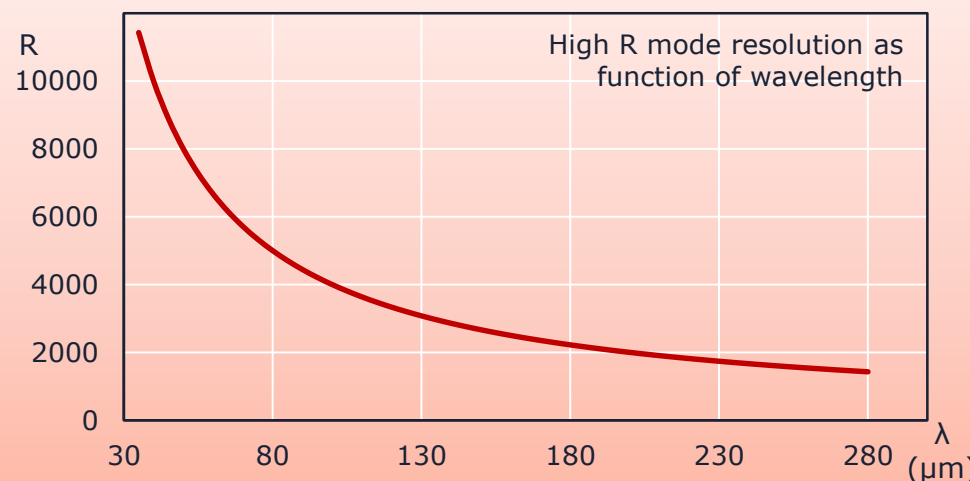
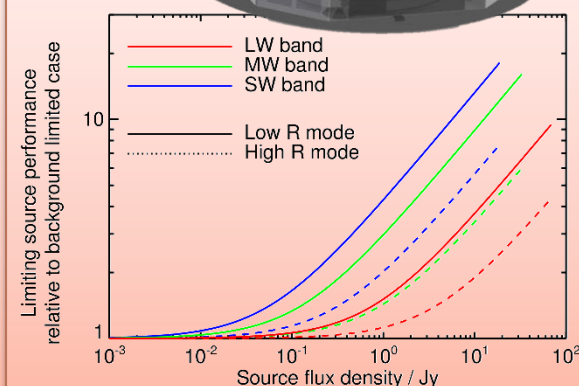
Parameter		Waveband			
		SW	MW	LW	LLW
<b>Band centre / <math>\mu\text{m}</math></b>		45	72	115	185
<b>Wavelength range / <math>\mu\text{m}</math></b>		34-56	54-89	87-143	140-230
<b>Band centre beam FWHM</b>		4.5"	7.2"	12"	19"
Point source spectroscopy ( $5\sigma$ -1hr)					
R $\sim$ 300	<b>Limiting flux / <math>\times 10^{-20} \text{ Wm}^{-2}</math></b>	7.2	6.6	6.6	8.2
	<b>Limiting flux density / mJy</b>	0.31	0.45	0.72	1.44
High R	<b>Limiting flux / <math>\times 10^{-20} \text{ Wm}^{-2}</math></b>	13	13	13	15
	<b>Limiting flux density / mJy</b>	18	17	17	19
Mapping spectroscopy* ( $5\sigma$ -1hr)					
R $\sim$ 300	<b>Limiting flux / <math>\times 10^{-20} \text{ Wm}^{-2}</math></b>	84	49	30	23
	<b>Limiting flux density / mJy</b>	3.6	3.3	3.3	4.1
High R	<b>Limiting flux / <math>\times 10^{-20} \text{ Wm}^{-2}</math></b>	189	113	73	51
	<b>Limiting flux density / mJy</b>	253	151	97	67
Photometric mapping* ( $5\sigma$ -1hr)					
Limiting flux density / $\mu\text{Jy}$		209	192	194	239
Confusion limit ( $5\sigma$ )		15 $\mu\text{Jy}$	200 $\mu\text{Jy}$	2 mJy	10 mJy

## SPICA Mission

- ESA/JAXA collaboration
- Telescope effective area 4.6  $\text{m}^2$
- Primary mirror temperature 8K
- Goal mission lifetime – 5 years

System performance v.s. target flux density, relative to the background limited case

- The sensitivity decrease is due to the increased photon noise from the target source
- Data given up to the instrument saturation limits for each band (31, 51 and 87 Jy for the SW, MW and LW bands respectively).



Sensitivities based on detector NEP  $2 \times 10^{-19} \text{ W}/\sqrt{\text{Hz}}$   
 \* Mapping performance is for a reference area of 1 arcmin $^2$

