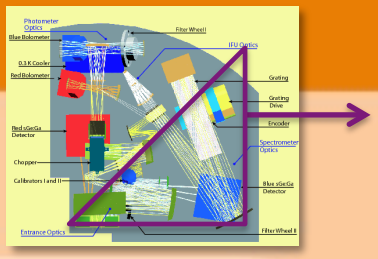
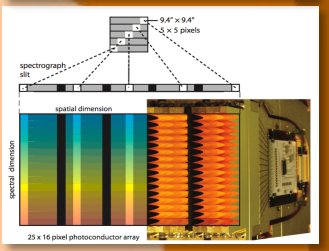
The Herschel—PACS Integral Field Spectrograph



The PACS Integral Field Unit: an image slicer splitting the FoV into a grid of 5x5 spaxels



Spectral characteristics

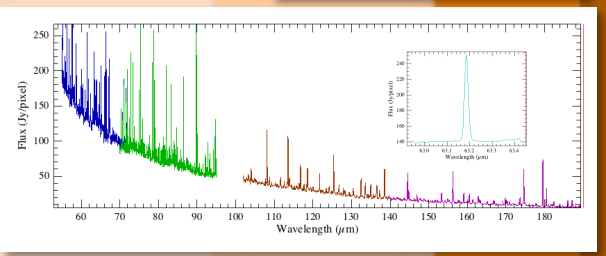
Beam (FWHM)	
50-100µm	9”
100-200µm	10”—13”
Instantaneous FoV	47” x 47”
Native spaxel size	9.4” x 9.4”
IFU sky footprint	slightly irregular grid of 5x5 spaxels

Spatial characteristics

Band	**B3A**	**B2A**	**B2B**	**R1**
λ range	55-70µm*	55-73µm	70-95µm	103-210µm*
R (mean)	4000	1700	2250	1500

* 51-55µm and 190-210µm data are provided as HPDPs

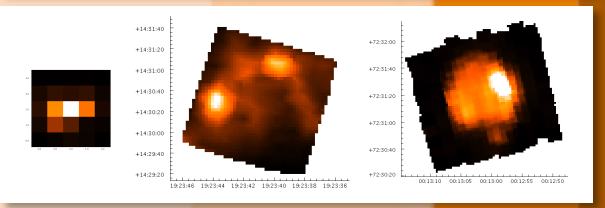
An SED and a single line scan



Observing modes

SED	The full band at Nyquist spectral sampling
Range scan	Any user-selected range at high or Nyquist sampling
Line scan	Coverage of an unresolved line and local continuum at high sampling
Pointed	Single pointing, cube with the native FoV
Mapping	Rasters producing mosaic cubes (tiling, oversampled or Nyquist mapping)

Cube image-slices for different pointing modes: pointed on a star, tiling on galactic ISM; Nyquist on a planetary nebula



Calibration accuracy

Absolute	rms 12%	systematic 2%	
Repeatability	rms 4%	**peak2peak 15%**	
Relative accuracy within a band	5-10%		

51-55 µm is uncalibrated
190-210 µm has lower calibration accuracy

Sensitivity

5σ 1hr R1	continuum 100—400 mJy line 2—4 x10^{-18} Wm^{-2}
5σ 1hr B2, B3	continuum 500—1000 mJy line 7—20 x10^{-18} Wm^{-2}

Key documentation

- PACS Quick-start Guide
- PACS Handbook
- PACS Products Explained
- PACS Data Reduction Guide
- Poglitsch et al., 2010

Products

Cubes	Native and interpolated cubes are provided for the pointed modes, various mosaic cubes are provided for the mapping modes. Units of Jy/[spatial pixel]
Spectral tables	Native cube data are also provided as a table. For pointed observations a point source-corrected spectrum is additionally provided