

## Stephan's Quintet (MIRI IFU Spectra)

### Extended Description

Infographic titled “Interacting Galaxies Stephan’s Quintet: Composition of Gas Around Active Black Hole; NIRCam and MIRI Imaging and MIRI IFU Medium Resolution Spectroscopy.”

On the left side are two reference images of a group of galaxies. On the right are two emission spectra: jagged line graphs of brightness versus wavelength. The peaks on the graphs are labeled with the names of various elements and compounds.

### Right Side: Reference Images

An oblique view of a NIRCam/MIRI composite image shows a group of galaxies of different shapes on a background of numerous smaller (more distant) galaxies. A zoom-in of the bright central core of the spiral galaxy at the top of the group is pulled out. The pull-out zoom has two circular outlines: a large circle at the center of the bright white core and a smaller circle at the upper right edge of the bright core.

### Left Side: Graphs

Two spectra are shown as graphs of brightness in janskys on the vertical y-axis versus wavelength of light in microns on the horizontal x-axis. The graphs are stacked and aligned vertically for easy comparison. Connector lines indicate the parts of the image (and the parts of the galaxy core) that each spectrum is related to.

### Axes

On both graphs, the x-axis has a log scale that ranges from just less than 5 microns to more than 25 microns, with labeled tick marks at 5, 10, and 20 microns.

On the top graph, which shows the spectrum emitted at the edge of the galaxy core, the y-axis has a log scale that ranges from 0.001 janskys at the origin to 10 janskys at the top, with labeled tick marks at 0.01, 0.1, 1, and 10.

On the bottom graph, which shows the spectrum of light emitted from the core of the galaxy, the y-axis has a log scale that ranges from 0.01 janskys just above the origin to 1 jansky at the top, with labeled tick marks at 0.01, 0.1, and 1.

### Data

Both graphs show jagged lines with many prominent spike-like peaks. Some are taller than others. The pattern of peaks (the wavelengths locations of the peaks) are the same on both graphs. The overall shape of the line is slightly different between the two graphs. Different peaks are labeled.

On the top graph, which shows the spectrum emitted at the edge of the galaxy core, ten peaks are labeled with the element that is emitting that wavelength of light. From left to right (shorter to longer wavelength) the peaks are: iron, argon, neon, sulfur, neon, neon, neon, sulfur, neon, and oxygen. Each peak is also highlighted in a color. Peaks of the same element are highlighted the same color. Iron is highlighted in orange; argon in purple; neon in green; sulfur in yellow; and oxygen in blue. In between the labeled peaks are many other unlabeled peaks.

On the bottom graph, which shows the spectrum of light emitted from the core of the galaxy, three peaks and one broad band are labeled. From left to right (shorter to longer wavelength), they are: a peak for molecular hydrogen, a peak for molecular hydrogen, a broad valley for silicates, and a peak for molecular hydrogen. All three of the molecular hydrogen peaks are highlighted in light purple. The band for silicates is highlighted in light green.

Although the locations of the peaks are in the same place on the two graphs, the heights of the peaks are different. The baseline (the line connecting the low points between peaks) of the graphed data is also different. On the top graph (edge of the core) the baseline is fairly flat from the left side to the middle of the graph at around 10 microns, and then slopes upward slightly to the end at the far right. On the bottom graph (middle of the core) the baseline slopes upward from left to right at an angle of about 30 degrees, with a broad dip centered around 10 microns where the silicate band is labeled.

### Alt-Text

Infographic titled “Interacting Galaxies Stephan’s Quintet: Composition of Gas Around Active Black Hole; NIRCam and MIRI Imaging and MIRI IFU Medium Resolution Spectroscopy.”

On the left side are two reference images of a group of galaxies. On the right are two emission spectra: jagged line graphs of brightness of light versus wavelength of light. The peaks on the graphs are labeled with the names of various elements and compounds. The top graph shows the spectrum of light emitted from the edge of the core of the galaxy, with 10 peaks labeled: iron, argon, neon, sulfur, neon, neon, neon, sulfur, neon, and oxygen. The bottom graph shows the spectrum of light emitted from the core of the galaxy, with 3 peaks labeled for molecular hydrogen and one broad valley labeled for silicates.