MIRI APT Templates

All JWST observations at wavelengths between 5 and 28.5 μm require the use of MIRI. There are four different templates for MIRI observations: imaging, low resolution slit and slitless spectroscopy, medium resolution IFU spectroscopy and coronagraphic imaging. Like for other instruments, MIRI observations are created by selecting a template (one per observation) and filling out any required fields. An observing program can consist of a set of observations using any combination of templates from the four JWST instruments, including MIRI. Mid Infrared Instrument (Old) observations are created using one of four MIRI templates within APT.

Basic capabilities of the MIRI templates

Imaging

Broad, medium and narrow-band imaging in a 75 × 113" FOV, or less if using subarrays. This template offers a set of pre-defined dither patterns, as well as mosaicing functionality for imaging of larger fields.

Low resolution spectroscopy

Low-resolution spectroscopy (LRS) with MIRI supports 5-10 micron single-object slitted and slitless spectroscopy at R~100. Unclear whether to mention the wide-field slitless data obtained serendipitously to the slitted mode. There is also data at 10-14 μm, albeit at limited sensitivity.

Medium resolution IFU spectroscopy

Full spectroscopic 5–28 μm coverage is offered using the medium resolution spectroscopy (MRS) mode. This is accomplished by observing simultaneously using four different IFUs (channels 1–4) with fields of view spanning 3 × 3" to 7 × 7". Three consecutive spectral settings are required for full spectral coverage. The spectral resolving power ranges from R~1550–3250, depending on wavelength. The MRS template supports a selection of dither patterns as well as mosaicing.

Coronagraphic imaging

MIRI has four different coronagraphs for high-contrast imaging of faint companions or extended emission around a bright point source: three different four-quadrant phase masks (FQPMs) and one Lyot mask. The FQPMs operate in three photometric bands at 10.65, 11.40, and 15.50 μm, while the Lyot operates at 23.00 μm.

Step-by-step

To create a new MIRI observation, choose an observation folder and click 'Add'. This will add a generic observation to the folder and open the observation form. The observation can be assigned a unique number and a text label (which does not need to be unique). Select MIRI from the Instrument drop-down menu. This activates the Template drop-down menu to allow the selection of a single MIRI observing template. Each observation must be associated with a single observing template.