

APT BREAKOUT SESSION: Science Case 2

MIRI and NIRSpec Observations of SN 1987A

APT Step-by-step Instructions:

1. Create new JWST proposal (File → New → New JWST proposal)
2. Under the Proposal Information tab fill out:
 - a. Title
 - b. Abstract
 - c. Category
 - d. Cycle
 - e. Scientific Category
 - f. Science Keywords
 - g. Attach PDF of science justification
 - h. Fill out Proposal Description tab
 - i. Add PI and CoI information
3. Under the Targets tab:
 - a. Add a fixed target (SN 1987A) – this needs to be done twice (for the MIRI imager and the IFU) because a dedicated background observation will only be created for the IFU
 - b. Add a fixed target for the background coordinates
 - c. For the IFU target, select “Observations of this target require companion background observation(s)” and select the background target under Target Selection
4. Under the Observations tab:
 - a. An Observation Folder or a New Observation will be created for each set of instruments/observing modes/configurations (in this case; MIRI Imaging, MIRI IFU, MIRI IFU background, NIRSpec IFU)
 - b. Fill out the Observation Summary for each Observation Folder
5. Filling out parameters for each observation:
 - a. MIRI Imaging
 - i. Instrument: MIRI
 - ii. Template: MIRI Imaging
 - iii. Coordinated Parallel: MIRI-NIRCam
 - iv. Target: SN-1987A
 - v. Subarray: BRIGHTSKY
 - vi. Dithers: add dither patterns for each filter
 - vii. Filters: Add all filters with corresponding exposure parameters, readout mode, and dither pattern

- viii. View the footprint in Aladin (you can load your own image)
- b. MIRI IFU
 - i. Instrument: MIRI
 - ii. Template: MIRI Medium Resolution Spectroscopy
 - iii. Target: SN 1987A-MRS
 - iv. Fill out Target Acquisition Parameters
 - v. Dithers: Add dither pattern for the MRS
 - vi. Simultaneous Imaging: Yes
 - vii. Imager Subarray; BRIGHTSKY
 - viii. Wavelength: Short/Medium/Long or ALL gratings
(Here, the Short/Medium/Long gratings were split off into separate observations in order to be able to use multiple filters for the simultaneous imaging)
 - ix. Specify exposure parameters for simultaneous imaging and the short and long MRS channels
 - x. View the footprint in Aladin
- c. MRS IFU background
 - i. Create the background observations by duplicating the MRS IFU observation folder
 - ii. Change the target to SN1987A-BKG
 - iii. Here, we decided not to dither in order to save time
 - iv. Under the Special Requirements tab, link the MRS IFU and MRS IFU background observations to be executed in a non-interruptible sequence
- d. NIRSpec IFU
 - i. Instrument: NIRSPEC
 - ii. Template: NIRSpec IFU Spectroscopy
 - iii. TA Method
 - iv. Science Parameters: select gratings and filters, readout pattern, exposure parameters, dithering, etc.
 - v. Duplicate observation for each grating/filer combination observation with Leakcal selected (these are taken with the IFU aperture closed in order to obtain the pattern of leakage from the open (failed) microshutter arrays.
 - vi. View the footprint in Aladin

6. Go to the Visit Planner and run Smart Accounting