



ESAC 2017 JWST Workshop



MIRI MRS Observations of SN1987A.

Sarah Kendrew, Macarena Garcia Marin, Stacey Bright. Based on Margaret Meixner and Patrice Bouchet GTO program

APT hands-on Experience

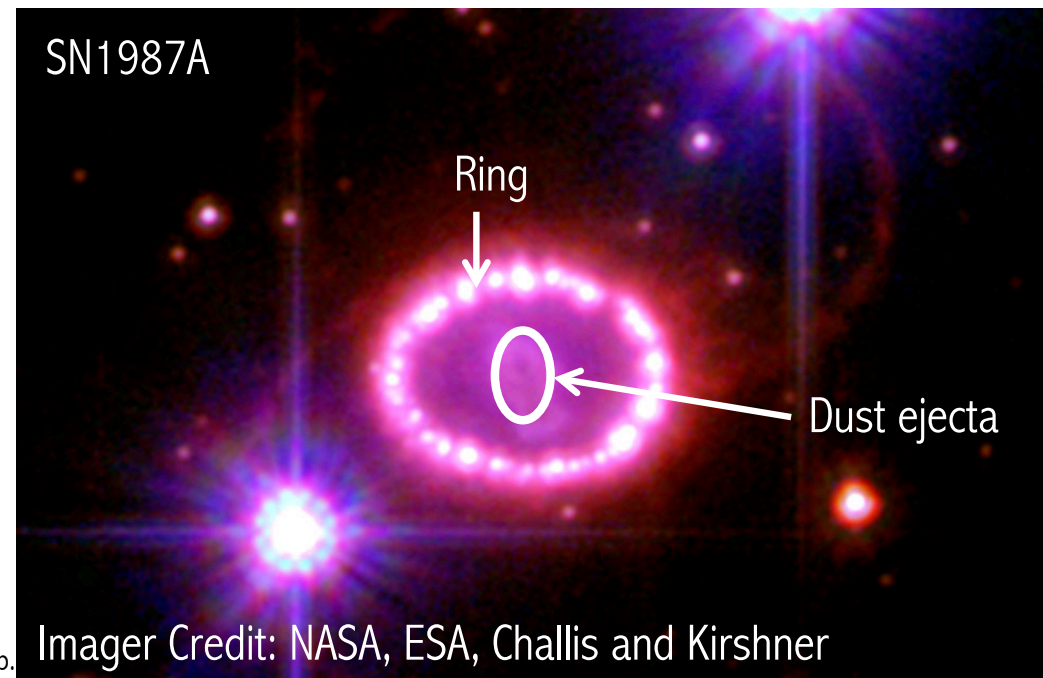


Overview



Goal: Create an APT program to observe SN1987A with the MIRI Medium Resolution Spectrometer in all spectral bands. The MRS will cover the entire structure and further. The simultaneous use of the imager will provide astrometric information using stars in the field.

Use the output of the SN1987A MIRI MRS and imager ETC exercise as input to build up this program.





APT: Getting Started



Create New JWST proposal: (File → New → New JWST proposal)

Investigate the Proposal Information Tab (you can leave this for the end and focus on the more technical part of the proposal first)

Create New JWST proposal: You will have to create two targets.

- Under the Targets Tab add a “fixed target” and search for SN1987A. Pay attention to the “Extended” target field.
- Then specify a background target (*): RA: 05 35 28.3900
DEC: -69 16 15.6025
- Go back to the SN1987A target. Click on the box “Observation Requires companion background obs.” Select the backgr. Target.



(*) Feel free to specify your own background region by investigating with the Aladdin visualization or ESASky



APT: Define Target Observations



Under the Observations tab: Create a New Observation Folder. This will be always needed for each set of instruments/observing modes/configurations.

When submitting your proposal the observation summary should be filled in. For the sake of this exercise that step is not needed.

Click on the Observation and fill in all the information. You will need three different observations to be able to use the three MRS gratings with three imager filters.

- For TA use the same target as science and 5 groups (*).
- Instrument, template to use, target, MIRI imager Subarray.
- Wavelength: Short/Medium/Long gratings should be split off into separate observations to be able to use multiple filters for the simultaneous imaging.
 - Dither points, filters, readout mode and exposure times should be consistent with those defined in the ETC exercise.

Use the Aladdin visualization tool with the MIRI footprint.

(*) For the sake of time this was not included in the ETC exercise. Feel free to give it a try. Ask your table expert about it!





APT: Define Background Observations



The Background observation folder can be created by duplicating the science target observation folder, and changing the target. Click on the Observation and fill in all the information.

- Consider your background strategy. Do you need to dither in the background?
- Go to the Special Requirements tab and add a Time Constrain Explicit Requirement. Link the SN1987A observations and SN1987A background observations to be executed in a non- interruptible sequence. This is a requirement to ensure data are taking under the exact same conditions.



Use the provided fits file in Aladdin. Do you need any constraint on the source PA?

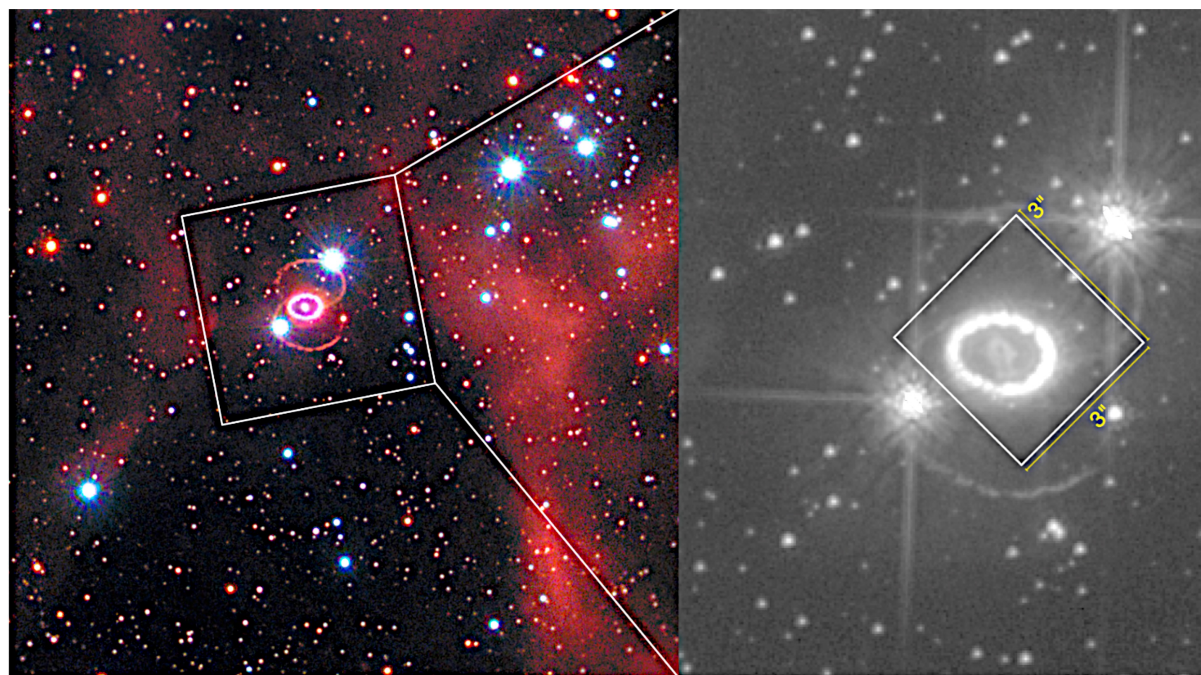


Figure credit: STScI, JDocs. The box represents 3"x3".





APT: Observation Schedulability



Highlight the Observations folder and run the Visit Planner.

Verify the schedulability of the program. Go to the visit planner menu and run smart accounting to remove potential unnecessary overheads.

Review the program.

Do you have errors or warnings? If yes, are they expected? Can you “fix” any?

