

Roman Coronagraph School Europe 2026

– Project –



Arthur Vigan
+ lecturers & SOC





Process

- ~1.5 day of work ahead of you
- Until lunch today:
 - Brainstorming and selection of a project
 - Presentation of 1 slide by all sub-groups
- This afternoon and tomorrow
 - Work on the project
- Today at 17:30
 - Short presentation of (early) results
- Tomorrow at 15:00
 - Short presentation of (more advanced) results
- Work can continue afterwards until end-of-day



Pre-defined sub-groups mixing expertise

1. Juliana / Oscar / Merwan
2. Laura Manuela / Lukas / Nico
3. Rosemin / Alexis / David
4. Sophie / Vito / Francesco
5. Nick / Barry / Justin
6. Klaus / Ben / Macarena / William



Data challenge-like project ideas

- At least two groups pick one of the following project:
 - Simulation of a disk+planet sequence with a few rolls
 - More complex: simulation of band 3 spectroscopy observation
- 1. Preparatory phase
 - Pick target, choose exposure times with ETC, ...
 - Data simulation
- 2. Simulated data are exchanged between groups
- 3. Analysis phase
 - Groups work on data reduction and extraction
 - And then retrieval, fitting, etc :-)



Other project ideas

1. Design a program from 10 to 500 hours in 2028
2. Planet + disk injection
 - a. Check detectability of planet vs. disk for different contrasts
3. Generate multi-epoch observations for one system
 - a. Follow-up: post-processing, astrometry, orbital fitting, albedo retrieval (following data challenge example)
4. Create a “grid-trieval” pipeline for fitting SL target Roman-CGI data + NIR data using Hummingbird models (or others from literature).
 - a. Follow-up: test for minimum Roman-CGI SNR and b1+b3+b4 coverage needed to add meaningful constraints
 - b. Follow-up: think carefully about wavelength-correlated noise
5. Generate climate models for top RL target(s)
 - a. Follow-up: assume you know separation, mass, and phase angle, fit for other RL planet properties (T_int, composition, cloudiness, radius) with a "grid_trieval" over your models.
6. Or your own idea... :-)