

What equipment do I need for spectroscopy?

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The instrument







- Equipment
 - Hardware
 - Software
- In the field
 - Recommendations
 - Polar alignment
 - Pointing at a star



Hardware

- Telescope (mount + tube)
- Spectroscope
- Acquisition caméra
 - Chip size
 - Pixel size
 - Spectral response
 - Efficiency
- Guiding camera
 - Field of view
- Pointing system
- Computer

And also...

- Adapters & rings
- Cables
- Power supply
- Table & chair



Software

- Acquisition software
 - Compliant with your acquisition camera
 - Full control of the image
- guiding software
 - Compliant with your guiding camera
 - Compliant with the mount
 - Full control of the guiding
- Sky map software
 - Must be able to connect Internet
- Data reduction software
 - Demetra, ISIS, Rspec, Bass

+ Python !



Point at a star

- Easy... goto function (NO!)
 - Flexions, atmospherical refraction, alignment error
- Guiding field is small
- Find any star coordinates
 - CDS, Simbad
- Sky map software

Your target: CH Cyg







CDS - Simbad

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Sky map

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Recommandations

- Back to basics, always
- Make your first spectra on a bench
- Control your telescope without spectroscope
- Train yourself to point <u>any</u> star
- An observation is a consistent set of images
- Process your data quickly
- Images are made to fit the data reduction process
- Never let your computer make the decisions for you
- Observe regularly (even in city center)
- Continuous improvement (a small step every day)
- Share your results !
- Join collaborative programs



Your night mission is...

Put as much light as possible in the slit



Mount

- Firmly put on the ground
- Polar alignment : several methods
 - Polar finder, King, Bigourdan, mount software
 - Which precision level ?
- Tighten locking screws
- PC connection
 - RS232 / ST4



Attaching the spectro

- Adpater rings
- RIGID attachement
- Orientation of elements
- Balancing
- Cables management
- Remote control
 - Don't touch at the spectro during the night
- If it works, don't fix it !



Cable managment





Saturation





Focusing order

- Spectroscope,
- Then guiding,
- Then telescope
- Exp time optimisation
 - Prevent saturation
- Displaying 1:1, binning 1:1
- Measure the FWHM
- Star disappears in slit



Focalisation(s) (focusing)





Focalisation(s) (focusing)











Your mission is...





Calculate the field of view



Telescope shelter







Telescope shelter

- Compact, for a small instrument
 - Useful diameter 1.15m
- Remote opening & closing
 - Python script
- No moving part inside the shelter
- Possible to close whatever the telescope position
- Controlled by Arduino & Raspberry
 - 4 stepper motors
- All parts in stainless sheet metal or painted aluminium
- All moving parts use ball bearings
- Only flat or small parts : easy shipment
- Easy assembly (one day)



Abri télescope



OHP Spectro star Party







Merci !

Vous ne verrez plus les étailes plus les étailes comme avant :

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