

We have set an [online repository in this link](#), where you can access the material from the mini-courses.

Also, please find the following instructions for the Numerical Relativity mini-course by Helvi Witek.

In the first session, we will work with mathematica and the free xAct/xTensor package.

To prepare for it, please

- install mathematica
- download the xAct package here: [xAct.es](#)
- follow the instructions on [xAct.es](#) to install the package.
- download the notebook  
"GRSplit\_HelviWitek\_IGravitasSchool\_Salinopolis\_Dec2024.nb"

In the second hands-on session we will analyze numerical relativity data of a black-hole merger, using a jupyter notebook.

To prepare for this session, please download and install jupyter on your computer, following the instructions [here](#):

Please check that you can run the jupyter notebook in your browser. If you have problems, please try a different browser, e.g., firefox or chrome.

- download the folder "Data" from the git repository. It should contain two subfolders  
"SF\_BBH\_Y11\_mu04\_q1\_d6" for a binary black hole simulation  
"SF\_massless\_Y11\_BHspin099" for a massless scalar field evolving around a spinning black hole.

- I will prepare a jupyter notebook that we will use to analyze the data, and share with you tomorrow.