

# 2nd School on Multiwavelength Astronomy ITN 215212: Black Hole Universe

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## VLBI calibration

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# IEEC

**(using material from the ERIS2009 school by S. Bourke and the  
1st MW school by E. Ros)**

# A few comments before starting

Sentences that you can often listen:

VLBI is a nightmare...

VLBI is for black belts...

Producing VLBI images is like cooking...

VLBI (imaging) is an (obscure) art...

Every array has its particularities, every user has its own recipes, but there are general things in which more or less we all agree. This is what we will do here: **data calibration**.

For VLBI data imaging you should go to a school focused on VLBI...

In VLBI calibration we perform **the same procedure as for connected interferometers such as EVLA, but we have to take care of differences between the correlator model and real life** (precise positions and motions of the antennas due to many reasons like tides, tectonic plate motions, inaccurate model of Earth rotation, etc., the atmosphere) **and of the VLBI nature of the array** (separate clocks or different masers with different reference times).

But remember, **doing self-cal on your target source generally means you lost all the position information.**

Before starting on your own, **read carefully** the EVN Data Analysis Guide and Chapter 9 and Appendix C of the AIPS Cookbook. There you will find a **good summary** of what you are doing and all the **gory details for black belts**. Once you realize you don't understand a word, start reducing data and don't forget to check plots regularly to understand what you are doing. **Only when you are very sure on what you are doing, start scripting** if you want.

# For the VLBA.



