astro8404: Radio Interferometry - Methods and Science

Milestone 1

deadline: 15 May 2017 23:59 CEST

Tasks:

1. **Investigate the scientific background of NGC 1614**
   - search for several recent scientific papers on NGC 1614, e.g. with ADS (http://adsabs.harvard.edu/abstract_service.html)
   - from these papers, extract the information relevant for the data, e.g. previous CO and CN observations, other radio astronomical observations, derived properties of the (atomic and) molecular gas

2. **Download the raw data and convert them to a measurement set**
   - download the exam data from the course material webpage
   - unpack the file with `unzip uid___A002_X8a5fcf_X125f.zip`
   - convert the raw data to a measurement set in CASA 4.6.0 using
     ```
     importasdm(asdm='uid___A002_X8a5fcf_X125f', asis='Antenna
     Station Receiver Source CalAtmosphere CalWVR', bdfflags=True)
     ```

3. **Retrieve the basic information of the observations**
   - write the basic information into a text file (listobs)
   - plot the antenna positions into a plot file (plotants)
   - check the setup of the observations including
     - configuration: number of antennas, estimate of maximum and minimum baseline, plot of the antenna positions
     - spectral setup: spectral windows, central frequencies, spectral resolution, purpose of each (group of) spectral window(s)
     - schedule: which sources ("fields") were observed, what is the purpose of each source and when was it observed, total integration time on each source

Deliverables:

1. **Scientific Background of NGC 1614** (pdf, page limit: 0.5-1 A4 page)
   write a short text on what is known of NGC 1614 with a particular focus on what is relevant for the exam data (see task 1)

2. **Description of the exam data** (pdf, page limit: 1-2 A4 pages including figure, excluding the appendix)
   - describe the setup of the observations including the plot file (see task 3)
   - as an appendix, attach your personal log-file and the listobs-file

Please upload the two pdf-files labeled with your name, e.g. background_muehle.pdf and observations_muehle.pdf, **to ftp://ftp.astro.uni-bonn.de/incoming/muehle before the deadline.** (Note: Once uploaded, the content is no longer visible to any outside user, including you!)