

astro8404:
RADIO INTERFEROMETRY: METHODS AND SCIENCE

GUIDELINES

In line with the hands-on concept of the Master course “Radio Interferometry: Methods and Science” (8404), the work to be evaluated for credit (4 credit points) consists of the presentation (Referat) and proper documentation (Ausarbeitung) of the reduction and analysis of a set of radio interferometric data.

Registration and attendance:

Students who want to take this course for credit must have registered for the course in the registration system of the University of Bonn (BASIS). It is expected that they attend the lectures and the CASA tutorial.

Deadlines:

Presentations: individually arranged time slots (30min.) on 04 August 2017

Papers: Friday, 04 August 2017, 23:59 CEST

Evaluation:

Evaluation: 66.7% paper, 33.3% presentation

Credit points to be earned: 4

The data:

ALMA data of NGC 1614 (uid___A002_X8a5fcf_X125f.zip), available for download from the course materials' webpage

The paper:

Length: 5-12 A4 pages

Content: see outline of the paper below

Formal aspects: pdf, paper written in English, minimum font: 11pt, figures may be in color or greyscale; please upload your paper to the ftp server <ftp.astro.uni-bonn.de> following the instructions on the course materials' webpage **before 04 August 2017, 23:59 CEST**

The presentation:

Length: 15 minutes plus ~5 minutes for questions

Content: summary of the paper, see below for outline

Formal aspects: to be presented in free speech in English and with computer-based slides in English, i.e. using one of the common presentation software packages (Impress, Powerpoint, Keynote, ...) or with all slides concatenated in a single pdf file

Making sure that the slides and their content can be displayed properly by the projector in room 0.006 is the responsibility of the presenter!

astro8404:
RADIO INTERFEROMETRY: METHODS AND SCIENCE

GUIDELINES (continued)

Outline of the paper:

- **Scientific Background of NGC 1614** (Basic facts on the galaxy like distance and classification, why is this galaxy interesting, previous CO observations, ...)
- **Description of the data set** (configuration, spectral setup, calibrators, ...)
- **Data reduction** (flagging, calibration steps, diagnostic plots, imaging steps)
- **Results + Discussion** (continuum map, continuum rms, spectral line rms, beam sizes, moment maps of CO (moment 0-2), integrated CO spectrum, total CO emission, p-v diagram)
- **Conclusions**

Recommended resources:

- deliverables of Milestones I, II and III
- slides of the lectures (and references therein)
- slides of the tutorials (and references therein)

- ADS: http://adsabs.harvard.edu/abstract_service.html (for scientific background)

- CASA cookbook: <http://casa.nrao.edu/docs/cookbook/>
- CASA guides: <http://casa.nrao.edu/docs/cookbook/>

- *Synthesis Imaging II*: <http://www.phys.unm.edu/~gibtaylor/astr423/s98book.pdf>
- *Tools of Radio Astronomy* (Springer), by Wilson, Rohlfs, Hüttemeister
- *Interferometry and Synthesis in Radio Astronomy* (Wiley 2001), by Thompson, Moran, Swenson