

Module: Elective Advanced Lectures: Observational Astronomy

Module No.: astro840

Course:



Methods of Experimental Astrophysics (OA)

Course No.:

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	2+1	4	ST

Requirements for Participation:

Preparation:

Elementary Physics (Bachelor level); Astrophysics I (and II)

Form of Testing and Examination:

Exercise and written test; or oral examination

Length of Course:

1 semester

Aims of the Course:

Gain insight into which type of instrumentation, based on which principles, is employed for particular astronomical and astrophysical applications; and learn about their practical and fundamental limitations in resolution and sensitivity

Contents of the Course:

- detection of radiation: direct and coherent detection
- Signal/Noise ratio: fundamental and practical limits
- principles of optical instruments: imaging
- principles of optical instruments: spectroscopy
- radio receivers: Local Oscillator, Mixer and Backend-Spectrometers
- calibration: theory and measurement strategies

Recommended Literature:

Rieke: Detection of Light

Kraus: Radioastronomy

Bracewell: The Fourier Transform and its Applications