Astrophysics

Module No.: MN-P-SP-Astro, MN-P-PN-Astro, MN-P-WaMa, MN-P-SP-Mol, MN-P-PN-Mol

Course: Experimental Methods in Astrophysics

Lecturers: Jürgen Stutzki, Volker Ossenkopf
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Category	Type	Language	Teaching Hours	CP	Semester
Specialized Course	Lecture	English	2	3	SuSe
Specialized Course	Lecture	English	2+1	4.5	SuSe

Requirements for participation:

Astrophysics I (Astrophysics II recommended)

Type of module examinations:

Exercise and written test; or oral examination, and one oral examination at the end of the module

Duration of the 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