Astrophysics

Module No.: MN-P-SP-Astro, MN-P-PN-Astro, MN-P-WaMa Version: 17.01.2014 PS

Course: Active Galactic Nuclei

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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 (Advanced Astrophysics recommended)

Type of module examinations:

One oral examination at the end of the module

Duration of the course:

1 semester

Aims of the course:

Understanding of fundamental concepts and physical radiation mechanisms for active galactic nuclei Like Seyfert-galaxies, QSOs, quasars, and violently variable objects.

Contents of the course:

The lecture introduces to basic aspects of active galactic nuclei:
Types of sources HII-galaxies, LINERs, Seyfert I, Seyfert II, QSO I , QSO II, BLLac /OVV-sources
Structure of an active nucleus: Broad line region (BLR), Narrow line region (NLR) and extended narrow line region (ionization cone).
Forbidden and permitted line transitions as density and temperature probes
Continuum emission processes: free-free and synchrotron radiation
Radio galaxies, jets and lobes as well as super luminal motion in jets.

Recommended literature:

Binney and Merryfield, Galactic Astronomy (Princeton University Press)
Binney and Tremaine, Galactic Dynamics (Princeton University Press)
Carroll and Ostlie, An Introduction to Modern Astrophysics (Addison-Wesley)
Schneider, Einführung in die extragalaktische Astronomie & Kosmologie (Springer, Berlin)
Shu, The Physics of Astrophysics I & II (University Science Books, Mill Valley)
Tielens, The Physics and Chemistry of the Interstellar Medium (Cambridge University Press)
Unsöld and Baschek, Der neue Kosmos (Springer, Berlin)
Weigert and Wendker, Astronomie und Astrophysik (VCH Verlag)