

GÖTTINGEN

S3

Active Galactic Nuclei

Content:

Taxonomy of Active Galactic Nuclei (AGN), Continuum and Emission Line Spectra, Structure and Kinematics of the Central Region, Black Holes, Environment of AGN
Compulsory, 5 ECTS

Stellar Structure and Evolution

Content:

The Basic Equations, Properties of Stellar Matter, Simple Stellar Models, Stellar Evolution, Compact Objects
Compulsory, 5 ECTS

Stellar Atmospheres

Content:

The radiation field, Radiation transfer, Emission and absorption, Hydrostatic equilibrium, Radiative equilibrium, Stellar atmospheres in non-lte
Compulsory, 5 ECTS

Physics of the Sun, Heliosphere, and space Weather

Content:

Interior, Helioseismology, Convection, Magnetic Fields, Photosphere and Chromosphere, Radiative Transfer, Corona and Heliosphere
Compulsory, 5 ECTS

Introduction to Solar System Physics

Content:

Overview on the Solar System, Planetary Atmospheres, Small Bodies in the Solar System, Planetary Interiors, Formation of Planetary Systems, Solar-terrestrial Relations
Optional, 4 ECTS

Cosmology

Content:

Observational Overview, Geometry of the Universe, Cosmological Models, Age of the Universe, Cosmic Microwave Background, The Early Universe
Optional, 4 ECTS

Scientific Computing for High Energy Physics

Content:

CERN organizes the CERN Schools of Computing with two major and complementary

objectives:

1. To train both theoretically and practically, young engineers and scientists from physics institutes collaborating in the CERN programme on the advanced technologies required to meet the very specific challenges that CERN is facing in computing, and which are generally not part of regular academic curricula (e.g. practical Grid technology, large scale software development and engineering).

2. Beyond the particle physics community, to transfer to academic, institutional and industrial circles in Member States and other countries, CERN skills and know-how in computing and ICT. These skills and know-how, though developed for the needs of the particle physics community, find direct or potential applications in all spheres of the society (as exemplified with the Web, developed by CERN and now, the Grid).

Optional, 4 ECTS

S4

Master thesis + Presentation

Compulsory, 30 ECTS

Astrophysics Seminar

Optional, 2.5 ECTS