

Branch: Physics Engineering



Code: PHYNPA

Option: Physics (nuclear, particle and astrophysics)

Level: Master

Prerequisites:

Opportunities:

Description:

The Master's program in Physics (Nuclear, Particle and Astrophysics) aims to understand our world at the subatomic level. It provides an in-depth understanding of nuclear, particle and astrophysical physics, both in terms of theoretical models and experimental observational techniques. What is this course about?

The research field of nuclear, particle and astrophysics aims to understand our world at the subatomic level, from the nuclei at the center of atoms to the most basic building blocks of our world. It examines the structure and formation of matter in the universe and the role of interactions and symmetries in the evolution of our universe, from the Big Bang to the ongoing formation of heavy elements in stars and stellar explosions. The electromagnetic, weak and strong forces can be described within the framework of quantum field theory, but not gravity. A common description of all fundamental forces is an important goal of this research. Depending on one's interests, the following specializations are possible, for example

Particle and Astrophysics deals, among other things, with astrophysics, astroparticle physics and high-energy neutrino astronomy.

Experimental Nuclear Physics deals with topics such as particle detectors, applications of interdisciplinary research and ultra-relativistic heavy ion collisions.

Experimental particle physics is devoted to areas such as cosmic and terrestrial accelerators, standard model tests, modern detectors, data analysis and Monte Carlo methods.

Theoretical particle physics focuses on areas such as group theory, quantum field theory and quantum chromodynamics.

Quality and competences: