

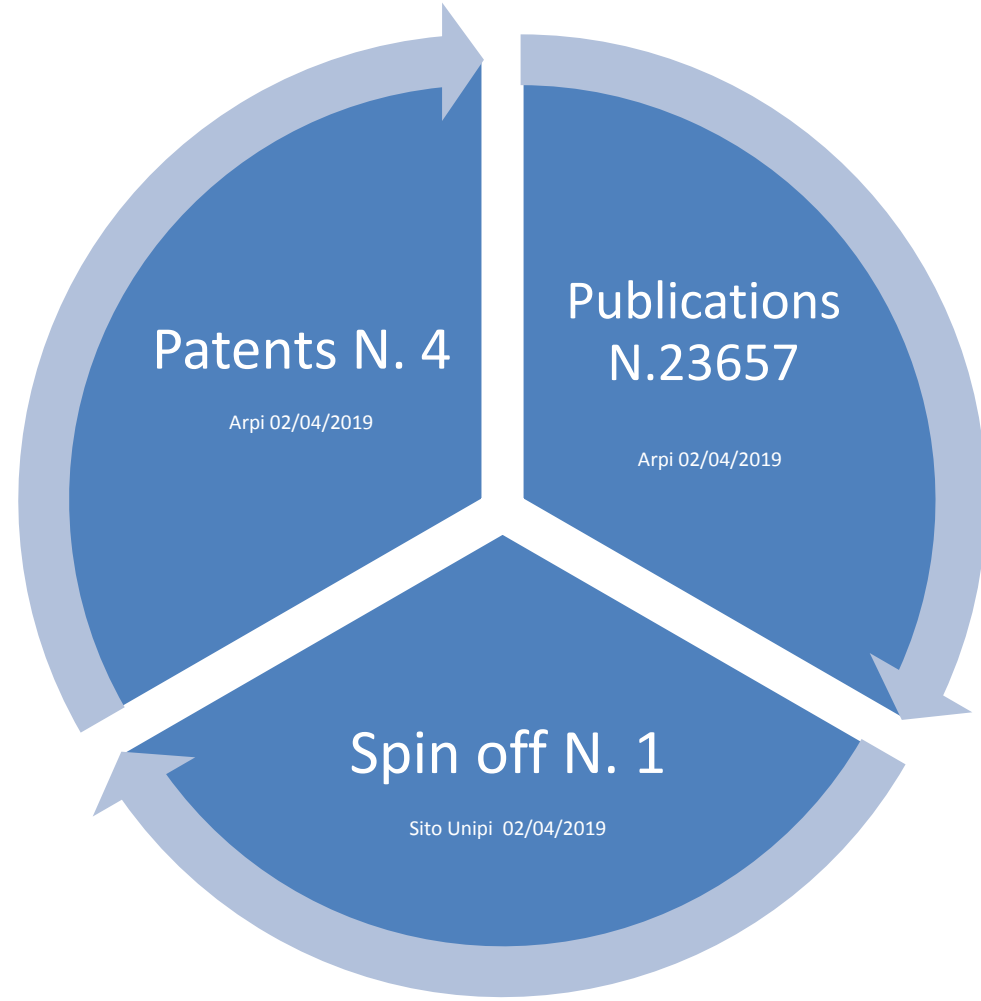
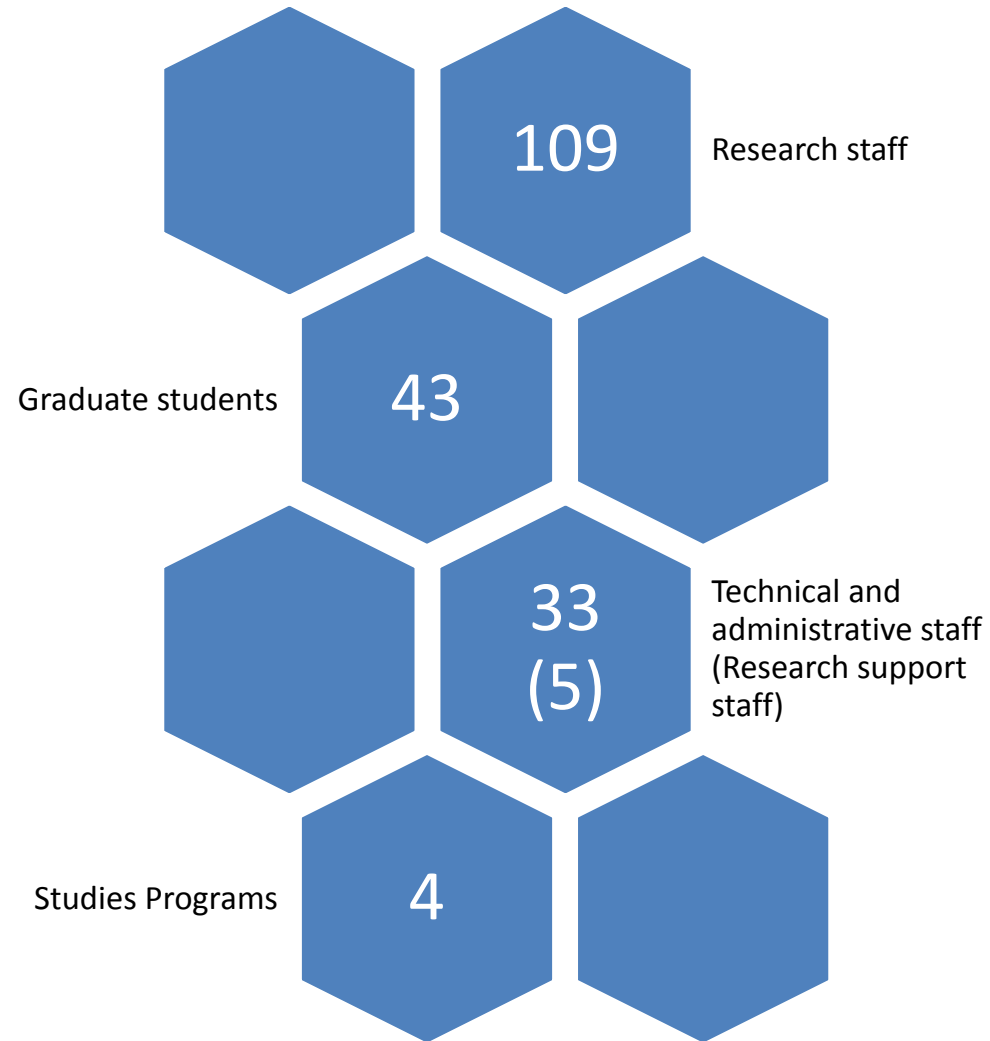
DEPARTMENT PHYSICS



QS WORLD UNIVERSITY
RANKING 2018
(PHYSICS): 51-100



DEPARTMENT AT A GLANCE



RESEARCH AREAS

Exp High Energy Physics

Advanced detectors for particle colliders (evidence of Higgs Boson @ LHC/CERN)
Methods and laboratories for capturing signals from the universe (gravitational waves @ VIRGO/EGO)

Physics of Matter

Photonics, nanotechnologies and nanoscience of condensed matter
Quantum control of matter, laser manipulation and cooling of atoms
Plasma and laser physics

Theoretical Physics

Theory of fundamental interactions
Theory of statistical and condensed matter physics
Quantum field theories and computational methods

Astrophysics

Physics of stars, planets, galaxies
Evolution of the universe and cosmology

Medical and Applied Physics

Imaging and disease diagnostic methods (PET, NMR, Tomographies,...)
Development of hadron therapies for cancer treatment

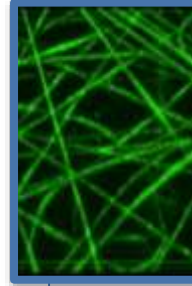


RESEARCH PROJECTS



High Energy Physics

- Development and completion of experiments at large facilities for the search of new physics



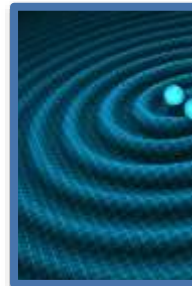
Nanotechnology

- Nanoparticles and nanofibers for new laser sources, biosensing applications, biomimetic fabrication



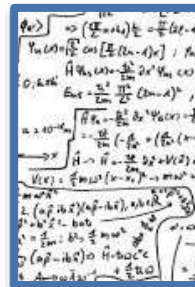
Photonics

- New detectors based on 2D materials & cryo technologies, devices for THz spectroscopy and microscopy



Multimessenger Physics

- New detectors and methods for observing the universe through cosmic particles and gravitational waves



New Challenges

- Development of theories and analytical methods to explain nature phenomena, such as origin of matter, dark energy, expansion of the universe, etc.

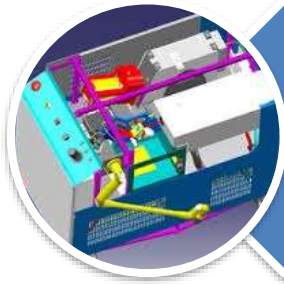


RESEARCH IMPACT



International collaborations at large facilities

- Experiments at VIRGO/EGO, CERN, KEK, FermiLab, ...



Technological transfer

- Patent and technical/scientific support to local companies, analytical and metrological services



Museum

- Care of Scientific Instrumentation collection (now @ SMA), Publica Engagement and Outreach activities

