DARIO GONZALEZ PICOS

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CAREER OBJECTIVE

I am a last year undergraduate student in Physics with concentration on Fundamental Physics. Capable of conducting independent and group research. Experienced in astronomical observations, astrophysical data analysis and modelling. Seeking to pursue a research path in Astronomy/Astrophysics. My interests cover a wide range of topics, from galaxy formation to exoplanets and astrobiology.

EDUCATION

University of Barcelona *September 2016 - June 2020 (expected)*
Bachelor of Science: Physics Overall Qualification: 75/100
Concentration: Fundamental Physics
Faculty of Physics
ECTS: 210/240

Lund University *Autumn 2019*
Exchange student: Erasmus Mobility Program Overall Qualification: VG[1]
Faculty of Physics and Astronomy

TECHNICAL STRENGTHS

Computer Languages	Python 3.7, Fortran90
Software & Tools	LaTeX, Excel, Jupyter Notebook, Bash (Unix)

SKILLS

- **Astronomy and Astrophysics**
  - Astronomical databases: SIMBAD, Aladin, STARALT.
  - Photometry: Data collection from open clusters with CCD. Determination of distance and evolution phase of stars.
  - Spectroscopy: Stellar classification and radial velocity measurements.
  - Imaging: Image acquisition, processing, and analysis with MaxIm DL, VisualSpec and AstroPy.
- **Programming/Computational**
  - Python 3.7: Forward-modelling and Bayesian inference techniques for atmospheric retrieval.
  - Fortran95: Develop algorithms for numerical analysis (Monte Carlo simulations, Partial Differential Equations, ...)
  - LaTeX: Write rigorous reports, articles, assignments according to scientific standards.

[1]Grading scale: Pass with distinction (VG), Pass (G). VG is equivalent to 85% in the Spanish education system.

RESEARCH EXPERIENCE

- **Characterization of exoplanetary atmospheres for the ARIEL mission**
  2019-2020 (current), Faculty of Physics (UB)[1] and Institute of Space Studies of Catalonia (IEEC)[2]
  Supervisors: Carme Jordi[1], Ignasi Ribas[2] and Guillem Anglada-Escudé[2].
  Conducting simulations with the `TauREx 3.0` (Python) library to study the capabilities of the ARIEL mission to study planetary atmospheres.

- **Monte Carlo simulations for particle diffusion in High Energy Astrophysics**
  Spring 2019, Faculty of Physics (UB)
  Supervisor: Dr. V.Bosch
  Developed code in Fortran90 to analyse particle distribution in the vicinity of cosmic accelerators. Generated N-particle *Random Walks* to compare the results to theoretical values. Applied Monte Carlo Simulations to non-trivial scenarios e.g. homogeneous diffusion in the galactic disk.

RELEVANT COURSES

Core Courses

Astronomy
Computational Physics
Observational Astronomy
Particle Physics and Cosmology
Astrophysics and Cosmology
General Relativity
Astrobiology
Quantum Mechanics

RELATED ACTIVITIES

Mentor in the Erasmus Buddy program, UB (2018)

Modern Physics Course, UB (June 2015)

Particle Physics Masterclass, UB (March 2016)

High School Graduation research project in Superconductivity and Magnetic Levitation.

EXTRA-CURRICULAR

Private tutoring in STEM subjects (since 2016).

Participated in the Erasmus Buddy program focused on helping foreign students during their stay in Barcelona and their studies at the university.

Finalist in the European Student Parliament in Manchester ESOF2016.

Volunteer with MSF in the refugee camps in Serbia (August 2017).

LANGUAGES

- Spanish and Catalan: Native
- English: Proficiency level (C2)
- German: Basic user (A2)