GEORGIOS CHRISTOU

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EDUCATION

PhD Particle Physics, The University of Edinburgh, Edinburgh, Scotland — Sept 2024 - Present

MSc Particle and Nuclear Physics, The University of Edinburgh, Edinburgh, Scotland — Sept 2023 - Aug 2024
Graduated with Distinction, 1^{st} in class, GPA: 75/100

BSc Physics, University of Cyprus, Nicosia, Cyprus — Sept 2019 - Jun 2023
Graduated with Excellence, 1^{st} in class, GPA: 8.66/10

High School Diploma, Lyceum Makariou III, Larnaca, Cyprus — Sept 2015 - Jun 2018
Graduated with Excellence, GPA: 19.22/20

RESEARCH EXPERIENCE

MSc Thesis — Nov 2023 - Present
Proton structure and light quark Yukawa couplings, Supervisor: Dr. Liza Mijović — *University of Edinburgh*

- Usage of machine learning for classification of different Higgs boson production modes in the di-photon channel
- Statistical analysis and interpretation of the results.
- First implementation of a novel approach for measuring light quark Yukawa couplings based on the production modes using the di-photon kinematics.
- Set stringent constrains on the light quark Yukawa couplings.

CERN Summer Student Programme 2023 — Jun 2023 - Aug 2023
CP asymmetries in charm decays, Supervisors: Prof. Angelo Carbone, Dr. Federico Betti — *LHCb Collaboration*

- Development of new kinematic weighting algorithm for the measurement of CP asymmetries.
- Implementation of RapidSim and Particle Gun to simulate data.
  The project report is on CDS and on GitHub.

BSc Thesis — Sept 2022 - May 2023
Baryon Spectrum using Lattice QCD, Supervisor: Prof. Constantia Alexandrou — *University of Cyprus*

- The thesis was a continuation of the previous project and the purpose was to complete the calculations for the baryon mass spectrum.
- The first ever calculation of the low-lying baryon spectrum at the continuum limit using exclusively physical point twisted mass fermion ensembles.
- Calculation of the baryon mass spectrum at the continuum limit and comparison with experimental values.
- Prediction of previously unmeasured low-lying masses of doubly- and triply-charmed baryons.

Undergaduate Internship — May 2022 - Jun 2022
Baryon masses from Lattice QCD, Supervisor: Prof. Constantia Alexandrou — *University of Cyprus*

- Calculation of various baryon masses using correlator data generated from lattice QCD simulations.
- Implementation of methods for evaluating the low-lying baryon spectrum at finite lattice spacing.

Undergaduate Internship — Jun 2021 - Aug 2021
Wheeler-DeWitt solution for Starobinsky potential, Supervisor: Prof. Nicolaos Toumbas — *University of Cyprus*

- The main purpose of this project was to see whether initial conditions favouring inflation are probable.
- We approximated the Starobinsky potential as a step function and we used the WKB approximation in the semiclassical regime in order to find the wave function for various values of the inflaton field.

- Using appropriate boundary conditions we constructed the quantum probability density distribution for this inflationary model.

TEACHING EXPERIENCE

Teaching Assistant Sept 2024 - Present
The University of Edinburgh

- Assisting students with workshop problems and marking assignments on machine learning, simulations and statistical analysis for the courses DAML, Computer Modelling

PUBLICATIONS

- A list of my publications can be found on my INSPIRE profile.

SKILLS

- **Programming**: Python, C++, Bash/Shell, Fortran, Mathematica
- **Languages**: Greek (Native), English (IELTS Score: 8, Level: C1), French (Beginner)
- **Technical**: Git, GitHub, LaTeX, Linux, Unix, Machine Learning (scikit-learn, TensorFlow, Keras), Data Analysis (NumPy, Pandas, Matplotlib)

AWARDS & ACHIEVEMENTS

Class Medal Award for MSc in Particle and Nuclear Physics, The University of Edinburgh Nov 2024
Awarded for the excellent performance in the MSc in Particle and Nuclear Physics

Valedictorian in the Department of Physics, University of Cyprus Jun 2023
Awarded to the student with the highest GPA of the department

OTHER

Cypriot National Guard Military Service: Cyprus, 14 Months Jul 2018 - Sept 2019
Rank: Private