# 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, 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.

**Undergdraduate 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 course DAML

## 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

## 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