

Daniel Hunt

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A first year Particle Physics DPhil student, recently graduated from the University of Birmingham and currently working at the University of Oxford with the LZ collaboration.

Direct Dark Matter Detection • Flavor Physics • Machine Learning • Science Outreach • STEM Education • Media Production
Python • C++ • ROOT • Geant4 • Tensorflow • Debian

CURRENT RESEARCH

UNIVERSITY OF OXFORD | PARTICLE PHYSICS DPHIL
Saint Peter's College

- Working with the LZ collaboration under Dr. Hans Kraus
- Conducting first analysis of LZ data
- Simulating proposals for upgrade to the LZ detector, for 2030
- Developing new hardware for the LZ system

EDUCATION

MSCI PHYSICS WITH PARTICLE PHYSICS AND COSMOLOGY | UNIVERSITY OF BIRMINGHAM

Graduated July 2020 | 1st With Honours

- Masters Project: "A high-intensity upgrade to the KTAG/CEDAR differential cherenkov counter in the NA62 experiment"
- Supervisors: Evgueni Goudzovski, Angela Romano

EXTRA-CURRICULAR

COMMITTEE MEMBER

Poynting Physical Society

- Organised and hosted events for undergraduate physicists
- Assisted with charity events, outreach and a tutoring scheme with nearby schools

STUDENT AMBASSADOR

Department of Physics

- Gave tours and answered questions for Birmingham undergraduate applicants
- Hosted events and activities for nearby schools

SOCIETY OUTREACH

Birmingham Astrophysics Society

- Helped with British Science week for 3 years, hosting outreach games and engaging with students in a lesson format
- Hosted 3 talks for Astrosoc, each of length 1 hour to an audience of 20, on various astrophysics topics

WORK EXPERIENCE

TEACHER | DAME ELIZABETH CADBURY TECHNOLOGY COLLEGE

June 2019

- Worked for 4 weeks at DEC and other schools as tutor, scribe, and technician
- Presented research on educating underprivileged students on wider context of STEM

SCIENCE TUTOR | FREELANCE

2017-2020

- Taught GCSE and A Level physics and maths to 5 tutees at varying levels

RESEARCH EXPERIENCE

MASTERS PROJECT

WORKING WITH DR. E. GOUDZOVSKI & DR. A. ROMANO

Sep. 2019 – Apr 2020 | University of Birmingham

- Worked with the NA62 collaboration for 1 year
- Simulated the introduction of MCP-PMTs into the NA62 KTAG differential cherenkov counter
- Evaluated costs and timing resolutions in KTAG in preparation for a high intensity upgrade to the LHC
- Work conducted in GEANT4, with analysis in ROOT

ATLAS EXPERIMENT

WORKING WITH DR. T. VICKEY

Aug - Sep 2019 | University of Sheffield

- Developed software for the ShATLAS group at the University of Sheffield for 4 weeks
- Built two neural networks to identify surface imperfections on the new ABCStar chipset to be constructed for the ATLAS ITk
- Work conducted in Tensorflow, Keras and PIL

NEWS-G COLLABORATION

WORKING WITH PROF. K. NIKOLOPOULOS & DR. I. KATSIOLAS

July - Sep 2019 | University of Birmingham

- Developed software for the NEWS-G collaboration at the University of Birmingham for 10 weeks
- Analysed the transport of alpha particles and protons in N2 gas in a Spherical Proportional Counter
- Evaluated the effect of varieties of shielding around the detector on cosmic rays and thermal neutrons
- Work conducted in GEANT4, Garfield++ and ROOT

KLEVER COLLABORATION

WORKING WITH DR. M. MOULSON, DR. T. SPADARO & DR. S. MARTELOTTI

Jun. 2020 – Sep 2020 | INFN

- Introduced Preshower Detector to simulation frameworks in KLEVER experiment for use in reconstructing event vertices
- Evaluated different structures of PSD, their reconstruction efficiency, and their impact on other components of the simulation
- Analysis to be used in provisional design report, with plans to construct experiment for 2030
- Work conducted in ROOT and Geant4

REFERENCES

DR. E. GOUDZOVSKI

University of Birmingham

E.GOUDZOVSKI@BHAM.AC.UK

PROF. K. NIKOLOPOULOS

University of Birmingham

K.NIKOLOPOULOS@BHAM.AC.UK

DR. T. VICKEY

University of Sheffield

T.VICKEY@SHEFFIELD.AC.UK
