

KIERAN DALTON

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EDUCATION

2018-

Pembroke College, University of Cambridge

BA (Hons) Natural Sciences

First Year: Physics, Mathematics, Chemistry, Materials Science;

First Class and 4th in the year of 600 (awarded college prize and scholarship)

2016-2018

Ysgol Friars, Gwynedd

A Levels: Physics (A*), Chemistry (A*), Mathematics (A*), Further Maths (A*)

AS Levels: Biology (A)

2014-2016

Hillgrove School, Gwynedd

GCSEs: 12 A*s, including two second languages and computer science.

RESEARCH EXPERIENCE

PAWB Summer School (2016-2018)

- Research phase involved empirical investigation of optical phenomena, specifically the linear polarisation of blue sky light due to Rayleigh Scattering.
- Designed and constructed a solar tracking device for photovoltaic cells, involving operational amplifiers, voltage comparators, monostables, multivibrators, and custom logic control (with D-flip flops).
- Developed understanding of optoelectronic devices and formulated and assembled complex logic circuitry.
- Returned to mentor students in photonics and circuit production techniques.

Engineering Education Scheme Wales (2017-2018)

- Designed and constructed a self-levelling platform capable of returning to any angular orientation relative to the horizontal. This project incorporated a lenticular grating, laser diode, rotational optical encoder, and logic circuitry.
- Won the AIRBUS 'Best Application of Engineering and Technology' award (and CREST Gold awards) and attended the 2018 National Big Bang Final.
- As team leader, I enthusiastically adopted leadership and enjoyed organising a long-team project involving circuit design and testing as well as team delegation and the completion of complex tasks before deadlines
- I was awarded Runner-Up EESW Young Engineer of the Year in 2018 for this and my previous project.

Cavendish Work Experience (2017)

- Worked with the Isaac Physics group at the Cavendish Laboratory, where I assisted in writing questions and concept pages for their website, a large government project.
- I enjoyed the opportunity to perform undergraduate experiments, such as investigating thin lens uses, and learned valuable report-writing skills.
- Benefited from the challenging environment with daily deadlines and a streamlined question writing, testing and peer review process.

EXTRACURRICULAR STUDY

International Summer School for Young Physicists (2017)

- One of 40 international students studying advanced physics concepts, such as special relativity, with lectures from renowned researchers in various fields of theoretical physics.
- Specifically, my mentorship group focused on quantum computing, including the Grover Search algorithm and Shor Code, with daily study sessions with experts culminating in a group presentation on the topic.
- One highlight was the visit to SNOLAB, where we were guided through the experiments in their subterranean clean room.
- Involved two weeks of substantial self-study in the challenging but cooperative atmosphere of the Perimeter Institute.

Quantum Cryptography School for Young Scientists (2018)

- Involved multiple courses of lectures covering quantum mechanics, classical and quantum cryptography, linear algebra and the theory and implementation of quantum cryptography and quantum computing.
- We performed experiments and had small group discussions with the resident researchers.
- Developed my interest and knowledge in the practical application of science.

ADDITIONAL EXPERIENCE

Academic: Pritchard Prize for Academic Achievement (2017,2018)
Senior Maths Challenge Gold, British Maths Olympiad round 2.

Volunteering: Assistant Lifesaving Instructor – Taught first aid and water rescue (2015-2016)
Head Boy – Organised voluntary inter-pupil teaching scheme for literacy and numeracy.
Sixth Form Council – Managed charity work such as Children in Need.

Skills: 4 English Speaking Board Distinctions
Rotary Youth Leadership Award (2016)
Hobby Programming: Java, Python, recently MATLAB.

Interests: Open-water Swimming, Football

REFERENCES

Dr Ray Davies

Position: Director of the Photonics Academy of Wales

Address: PAWB, School of Electronic Engineering, Bangor University, Dean St., Bangor, Gwynedd, LL57 1UT

Email: r.davies@bangor.ac.uk

Professor Mark Wyatt

Position: Director of Studies for Physical Natural Sciences, Pembroke College

Email: wyatt@ast.cam.ac.uk
