

Sean M. Keenan

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Education

Heriot-Watt University

Edinburgh, Scotland

PHD PHYSICS

Oct. 2021 - Present

- Fully funded position with the Quantum Memories group at Heriot-Watt University.
- Researching the use of rare-earth ion doped crystal matrices to produce an efficient quantum memory operating in the telecommunications band.

Heriot-Watt University

Edinburgh, Scotland

MPHYS PHYSICS (HONS) - First Class

Sep. 2016 - Aug. 2021

- Chosen to progress onto the integrated MPhys course due to maintaining an average of 60% over all taught courses during my undergraduate degree.
- Final year project modelled dispersion in novel waveguide designs for selective supercontinuum generation.
- Honours year research project investigated the characterisation of losses in nonlinear integrated optical waveguides.
- Research based degree, covering courses in leading edge physics as well as energy technologies and electrical and mechanical engineering principles.

Moray College

Elgin, Scotland

HNC ELECTRONIC ENGINEERING

Sep. 2012 - Aug. 2013

- Studied the design of semi-conductor circuits and their applications.
- Analysed feedback systems in real world applications, such as PLC's and troubleshooting these systems.

Skills

Programming LabView, Matlab, Lumerical, LaTeX, Python, Fiji
Languages English (Native), Italian (Basic)

Research Experience

Dr. M. Mazzer: Quantum Photonics Laboratory (Heriot-Watt University)

Edinburgh, Scotland

RESEARCHER (SUMMER INTERNSHIP)

Jun. 2020 - Aug. 2020

- Tasked to design and build a narrow linewidth laser cavity for operation in the 606nm and 1550nm wavelengths for use in future studies of quantum storage materials.
- Modelled cavity using Python to provide cavity characteristics and produce plots of resonance peaks.
- Developed script to extract beam shape and parameters from real experimental images.

Dr. M. Ferrera: Advanced Structures Nanophotonics Group (Heriot-Watt University)

Edinburgh, Scotland

HONOURS YEAR RESEARCH PROJECT

Sep. 2019 - Mar. 2020

- Continuation of leading edge research into the characterisation of losses in integrated photonic waveguides.
- Successfully characterised low loss waveguides to within several dB/cm, laying the foundations for the first such test centre in the UK.
- Developed an automated system to calculate the intrinsic losses of SiN waveguides through measurements of their output Fabry-Pérot fringe contrast.
- Wrote programmes in LabVIEW and Matlab to automate the scanning of a CW laser source and to analyse the corresponding data.

Dr. L. Paterson: Biophotonics-Group (Heriot-Watt University)

Edinburgh, Scotland

RESEARCHER (SUMMER INTERNSHIP)

June. 2019 - Aug. 2019

- Successfully constructed and tested an inverted optical trap for future investigations into the microrheological properties of micro-algae.
- Adapted current Matlab script in order to handle larger image files.
- Developed analytical thinking and problem solving capabilities.

Work Experience

Teledyne CD Ltd.

Aberdeen, Scotland

CUSTOMER SERVICE ENGINEER

Jan. 2015 - Mar. 2015

- Part of a small team responsible for all customer warranty and repair items, including ITAR sensitive equipment.
- Streamlined customer warranty and returns process, decreasing waiting time by up to two weeks.
- Developed a keen-eye for detail and understanding of equipment to correctly identify malfunction from misuse.

Oceaneering Int. Ltd.

SUBSEA TECHNICIAN

Dyce, Scotland

Oct. 2013 - Oct. 2014

- Updated the assembly procedure for sub-sea electronics pods & wrote comprehensive technical guide.
- Led a small team to redesign and manufacture a portable device capable of converting ethernet signal to fibre for use off-shore.
- Responsible for maintaining department electronics supplies and equipment.

Royal Auxiliary Air Force, 2622 (H) Sqn

RESERVIST REGIMENT GUNNER

Lossiemoth, Scotland

Apr. 2012 - Apr. 2017

- Section second-in-command responsible for section organisation and welfare.
- Developed team leading & interpersonal skills working in remote and testing conditions as part of deployments across the world.

Honours & Awards

DOMESTIC

2018 **Rank Prize Fund**, Summer Vacation Scholarship with Paterson Group - Heriot-Watt

*Edinburgh,
Scotland*

2020 **IPaQs Summer Scholarship**, Summer Vacation Scholarship with Mazzera Group - Heriot-Watt

*Edinburgh,
Scotland*

Extracurricular Activity

Heriot-Watt University (Physics Dept.)

IPAQS PHD REPRESENTATIVE

Edinburgh

Mar. 2022 - Present

- Voted in by my peers to represent the PhD students of IPaQS at an institute level.
- Helped to organise social events and gatherings, such as the popular bi-weekly QTech talks.

Royal Air Force(VR) (East of Scotland University Air Squadron)

ACTING PILOT OFFICER

Leuchars, Edinburgh

Apr. 2017 - Aug. 2022

- Responsible for the leadership & management for over 30 Officer Cadets.
- Responsible for the co-ordination & organisation of annual field training for the squadron.
- Organised the ESAUS team entry into the annual RAF climbing championships including arranging accommodation and transport.

Heriot-Watt University (Physics Dept.)

STUDENT GUIDE

Edinburgh

Sept. 2019 - Sept. 2020

- Responsible for mentoring new students and providing guidance on University life.
- Organised presentations and classes to cover topics affecting students.

Heriot-Watt University (Physics Dept.)

CLASS REPRESENTATIVE

Edinburgh

Sept. 2016 - Aug. 2017

- Responsible for handling student issues / problems relating the course and passing them up the chain.
- Attended faculty meetings to guide the direction of future policy related to 1st year courses.

Writing

Physics Departmental Newsletter

EDITOR

Heriot-Watt

Aug. 2020 - PRESENT

- Started up a newsletter to share notices and information amongst the entire physics department.
- Gathered interest by form of online poll before co-ordinating contributions and designing layout / formatting.
- Recruited and managed a small team to maintain the newsletter.