

Title of Project	Division	1 st Supervisor	2 nd Supervisor	Project taken	Numbers	Notes
Design and Simulation of Millimetre Wave Cavities	Plasmas	Adrian Cross	Huabi Yin			
Design and Simulation of an electron beam source for a Millimetre Wave Klystron	Plasmas	Adrian Cross	Liang Zhang			
Design of components for a THz millimetre wave amplifier	Plasmas	Adrian Cross	Craig R. Donaldson			
Highly efficient frequency up-conversion in Rb vapour	Optics	Aidan Arnold	Erling Riis	y	1	4th, Craig Colquhoun
Development of a new hyperspectral radiometer for field spectroscopy	Nanoscience	Alex Cunningham	David McKee			
Characterisation of irregular shaped particles by optical microscopy and digital imaging	Nanoscience	Alex Cunningham	David McKee	y	1	4th, Alasdair Rutherford
Exotic helical waves in optical cavities	Optics	Alison Yao	Gian-Luca Oppo			
Optical forces on nanoparticles	Nanoscience	Ben Hourahine	Francesco Papoff, Gordon Robb	y	1	4th, Robert Harris
Optical modes and multiple scattering	Nanoscience	Ben Hourahine	Francesco Papoff			
Twisted nanostructures	Nanoscience	Ben Hourahine	Maxim Fedorov			
Simulation of electromagnetic waves in magnetized plasmas	Plasmas	Bengt Eliasson	Kevin Ronald, David Speirs	y	1	4th, Timothy Heelis
Beam-driven Plasma Wakefield Acceleration (PWFA)	Plasmas	Bernhard Hidding	Dino Jaroszynski			
The theory of X-ray Free electron Lasers	Optics	Brian McNeil		y	1	4th, Sean Davies
Computational modelling of X-ray Free electron Lasers	Optics	Brian McNeil				
The scientific applications of X-ray Free Electron Lasers	Optics	Brian McNeil		y	1	4th, James Simpson
Resonant Electron Beam-light Interactions	Optics	Brian McNeil	Gordon Robb	y	1	5th, Ben Docherty
Optical spectroscopy of distant sources	Nanoscience	Carol Trager-Cowan	David McKee	y	1	4th, Gillian Shenstone
Statistical analysis of defect distributions in semiconductor thin films	Nanoscience	Carol Trager-Cowan	Paul Edwards			
Image processing of electron channelling contrast patterns and electron channelling contrast	Nanoscience	Carol Trager-Cowan	Paul Edwards			
Nanosatellite optics for free-space quantum communication	Optics	Daniel Oi	Alison Yao	y	1	4th, Craig Gordon
Compressive Sensing of High Dimensional Entangled States	Optics	Daniel Oi				
Does D-Wave have a Quantum Computer?	Optics	Daniel Oi				
Nanoparticle metrology	Nanoscience	David Birch	Jens Sutter	y	1	4th, Hazel Stewart
Glucose sensing	Nanoscience	David Birch	Olaf Rolinski	y	1	4th, Jonathan McSherry
Modifying Melanin's Structure	Nanoscience	David Birch	Jens Sutter	y	1	5th, Alastair Davy
Spectral deconvolution of inherent optical properties in marine water columns	Nanoscience	David McKee	Alex Cunningham	y	1	5th, Callum Shanks
Measurements of the absorption coefficients of suspended particles	Nanoscience	David McKee	Alex Cunningham	y	1	4th, Roseanne Clement
Hyperspectral transmissometry using a supercontinuum laser	Nanoscience	David McKee	Alex Cunningham	y	1	5th, Chris McLaughlin
Laser Wakefield Acceleration and Betatron Gamma Ray Radiation	Plasmas	Dino Jaroszynski	Ranaul Islam	y	1	5th, Adam Mackie
Radiation Reaction	Plasmas	Dino Jaroszynski	Adam Noble	y	2	5th, Hannah Currie; 4th, Alexander MacLeod
Non-linear Optics in Plasma: Raman Amplification and Frequency Mixing	Plasmas	Dino Jaroszynski	Bernhard Ersfeld	y	1	4th, Euan Kleboe
Electron Beam Transport and Diagnostics	Plasmas	Dino Jaroszynski	Enrico Brunetti			
Capillary Discharge Waveguides for Laser-Plasma Interactions	Plasmas	Dino Jaroszynski	Mark Wiggins	y	1	4th, Lewis Reid
Phase-contrast X-ray imaging using an X-ray source based on a laser-plasma accelerator	Plasmas	Dino Jaroszynski	Silvia Cipiccia	y	1	5th, Maria Weikum
Laser-Wakefield Plasma Accelerated electron optimization for Very High Energy Electron	Plasmas	Dino Jaroszynski	Silvia Cipiccia	y	1	4th Alexander MacDonald
Radiotherapy using Beams from Laser-plasma Accelerators	Plasmas	Dino Jaroszynski	Silvia Cipiccia	y	1	4th, Gregor Garbutt
Historical Physics Equipment	Optics	Erling Riis	Kevin O'Donnell	y	1	4th, Lauren Henry
Atom interferometry in ring traps	Optics	Erling Riis	Paul Griffin	y	1	4th, Niamh Keegan
Digital control circuits	Optics	Erling Riis	Paul Griffin	y	1	4th, Stuart Wilson
Coherent Population Trapping in Atomic Vapours	Optics	Erling Riis	Paul Griffin	y	1	5th, Calum Macrae
Realistic model of Electromagnetic Resonances in Nanoparticles	Optics	Francesco Papoff	Ben Hourahine			
Surface Fields in Layered Nano Particles	Optics	Francesco Papoff	Ben Hourahine			
Resonances in clouds of cold atoms	Optics	Francesco Papoff	Gordon Robb, Ben Hourahine			
Fluctuations and Noise in Cold Atoms	Optics	Francesco Papoff	Gordon Robb	y	1	5th, Richard Peddie
Short-wavelength Two-photon Microscopy	Centre for Biophotonics	Gail McConnell	Johanna Tragardh	y	1	4th, Peter Graham
Simulations of Coupled Laser Networks	Optics	Gian-Luca Oppo	Thorsten Ackemann			
Pattern Formation and Turbulent Helical Waves	Optics	Gian-Luca Oppo	Alison Yao	y	1	4th, Christopher Gibson
Interaction of Spatial Optical Solitons	Optics	Gian-Luca Oppo	Willie Firth			
Simulations of Spin-Polarized Vertical-Cavity Surface-Emitting Lasers	Optics	Gian-Luca Oppo	Thorsten Ackemann	y	1	5th, Calum Williams

Interaction of Spatial Optical Solitons	Optics	Gian-Luca Oppo	Willie Firth	y	1	5th, Mark Boules
BEC-light interactions	Optics	Gordon Robb		y	1	4th, Kristofer Gray
Cold atom-light interactions	Optics	Gordon Robb		y	1	4th, Robert Smith
BEC simulations	Optics	Gordon Robb		y	1	5th, Dominic Hunter
Exotic quantum operations with light	Optics	John Jeffers	Daniel Oi	y	1	4th, L Chirondojan
Quantum Optical Computational Toolbox	Optics	John Jeffers	Gian-Luca Oppo	y	1	4th Johnathan Conway
Neurophotonic Devices for Interfacing with Neural Circuits in the Brain	Institute of Photonics	Keith Mathieson	Niall McAlinden	y	1	5th, C Papadopoulos
Luminescence Hysteresis	Nanoscience	Kevin O'Donnell	Paul Edwards			
Re doped Gallium Nitride for Red LEDs	Nanoscience	Kevin O'Donnell	Rob Martin			
Inter and Intra-band Spectroscopy of GaN Quantum Dots	Nanoscience	Kevin O'Donnell	Rob Martin	y	1	4th, Ivan Morgan
Design of a Frequency Swept, Multi-Megawatt, Cherenkov Oscillator	Plasmas	Kevin Ronald	Philip MacInnes	y	1	4th, Martyn Lees
Sweep Frequency Microwave Pulse Compression using a Helically Corrugated Waveguide	Plasmas	Kevin Ronald	Wenlong He	y	1	5th, Thomas Duffy
Predicting Solvation Thermodynamics of Bioactive Molecules	Nanoscience	Maxim Fedorov	Neil Hunt, David Palmer	y	2	5th, Kelly Thomson; 4th, Kelsey Provan
Molecular Mechanisms of Biological Adaptation to Extreme Ionic Environments	Nanoscience	Maxim Fedorov	Neil Hunt, David Palmer			
Effects of Salts (Inorganic, Organic and Ionic Liquids) on Stabilization and Bundle Formation	Nanoscience	Maxim Fedorov	Neil Hunt	y	1	4th, Callum Mair
Effects of Alcohols on Stabilization and Bundle Formation of Carbon Nanotubes in Aqueous	Nanoscience	Maxim Fedorov	David Birch			
Biodegradable Choline-based Surfactants for Improving Stability of Carbon Nanoparticle	Nanoscience	Maxim Fedorov	David Birch	y	1	4th, Liam Glen
Predicting small molecule binding sites on protein surfaces	Nanoscience	Maxim Fedorov	David Palmer			
Silicon micro-resonators for non-linear optics	Institute of Photonics	Michael Strain	Nicolas Laurand			
Uncovering the early stages of protein folding	Nanoscience	Neil Hunt	Paul Hoskisson	y	1	5th, Oliver Hay
The Physics of DNA	Nanoscience	Neil Hunt	Katrin Adamczyk, Glenn Burley	y	1	4th, Stephen Howorth
A Physical Investigation of Protein-drug Binding	Nanoscience	Neil Hunt	Paul Hoskisson	y	1	5th, Audrey Gillies
Testing for gravitational coupling to Entropy.	Nanoscience	Nick Lockerbie	Tom Han			
Direct laser writing of mechanically-flexible hybrid photonic devices	Institute of Photonics	Nicolas Laurand	Benoit Guilhabert	y	1	4th, Raphael Cathagne
Atomic Processes for Astrophysical Plasmas	Plasmas	Nigel Badnell		y	1	4th, Gavriil Chatzitheodoridis
Excitation of Heavy Atomic Species for ITER	Plasmas	Nigel Badnell	Bob Bingham			
Quantum Cascade laser pumping of molecular lasers (BSc) Computational	Optics	Nigel Langford				
Non-resonant optical cavities	Optics	Nigel Langford	Alison Yao	y	1	4th, Benjamin Wright
Control of Quantum Cascade chirped laser pulses via dispersion management (BSc) Comp	Optics	Nigel Langford				
Chirped pulses in Fabry Perot etalons (BSc) Computational and experimental	Optics	Nigel Langford				
Quantum Cascade Laser Sensing of Gaseous Isotopes	Optics	Nigel Langford	Geoff Duxbury	y	1	5th, Lisa Blair
Protein adaptation to extreme ionic environments: how bacteria can survive in highly con	Nanoscience	Olaf Rolinski	Maxim Fedorov	y	1	4th, Adam Higginson
Intrinsic Fluorophores in Sensing Applications	Nanoscience	Olaf Rolinski	Yu Chen	y	1	5th, Damien McLaughlin
Fabricating Amyloid Functional Materials for Artificial Photosynthesis	Nanoscience	Olaf Rolinski	Yu Chen	y	1	5th, Holly Little
High energy ion acceleration in intense laser-plasma interactions	Plasmas	Paul McKenna	Ross Gray	y	1	4th, John McCreadie
Induced relativistic optical transparency in intense laser-solid interactions	Plasmas	Paul McKenna	Ross Gray			
Design study on plasma optics	Plasmas	Paul McKenna	Ross Gray			
Effects of electron irradiation on photoluminescence spectra of thin film Cu(InGa)Se2	Nanoscience	Rob Martin	Michael Yakushev	y	1	4th, Rachel Elvin
Electroluminescence spectroscopy and electrical characterisation of light-emitting diodes	Nanoscience	Rob Martin	Paul Edwards			
Modelling semiconductor nanostructures using a Schrödinger-Poisson-current solver	Nanoscience	Rob Martin	Paul Edwards			
Characterisation of Bulk and Thin film Semiconductor Layers for Solar Cells	Nanoscience	Rob Martin	Michael Yakushev	y	1	5th, Christopher Bryce
Holographic Atom Traps	Optics	Stefan Kuhr	Graham Bruce	y	1	4th, Charelle Dunbar-Dawe
Compact Phase-Locked Radio Frequency Source for Cold Atom Experiments	Optics	Stefan Kuhr	Elmar Haller			
Characterization of optical pumped quantum dot and quantum well VECSEL Wafers	Optics	Thorsten Ackemann				
Polarization and Feedback Dynamics of VCSELs	Optics	Thorsten Ackemann	Erling Riis	y	1	5th, Mark Logan
Self-organized Patterns in Rb Vapour	Optics	Thorsten Ackemann	Aidan Arnold	y	1	5th, Martin Grant
Optical Properties of ZnO Powder Doped with Lanthanide and Transition-metal Ions	Nanoscience	Tom Han				
Optical Second Harmonic Generation in Urea	Nanoscience	Tom Han	Nigel Langford	y	1	4th, Neil Stevenson
Stimulated Raman spectroscopy (SRS) of Organic liquids	Nanoscience	Tom Han	David McKee	y	1	5th, Kyle Bryson
Optical properties of Christiansen Filter	Nanoscience	Tom Han				
A spectroscopic study Carbon nano-particles	Nanoscience	Tom Han		y	1	4th, Junaid Ahmad
Energy Transfer as a Nanoscale Ruler	Nanoscience	Yu Chen	Olaf Rolinski	y	1	4th, Matthew Risk

Optical Properties of Nanoparticles	Nanoscience	Yu Chen	Olaf Rolinski	y	1	4th, Chloe Chung
Noble Metal Quantum Dots	Nanoscience	Yu Chen	Olaf Rolinski	y	1	4th, William Fleming
Relativistic electron motion in colliding laser fields and resulting X-ray radiation	Plasmas	Zheng-Ming Sheng				