

#	Title	Supervisor(s)	Student 1	Student 2
<b>1</b>	<b>Astrophysics Experiment and Instrumentation</b>	<b>Denis Martynov</b>		
1.1	Looking deep into the LIGO detectors using machine learning techniques and Bayesian analysis	D Martynov		
1.2	Laser beam shape distortion in gravitational wave detectors	A Freise		
1.3	Laser interferometers and seismometers for gravitational waves	C Mow-Lowry	Davis, Isaac	Mitchel, Alex
1.4	Testing the inverse square law at 15 micrometres	C Speake	O'leary, Arthur	Yamaguchi, Hugo
<b>2</b>	<b>Astrophysics Theory and Observation</b>	<b>Patricia Schmidt</b>		
2.1	Planetary and binary star systems, with a twist	A Triaud	Filip, Teodora-Maria	Kumar, Mukul
2.2	High-precision stellar astrophysics: testing models of stellar structure using asteroseismic, astrometric and spectroscopic constraints	A Miglio, J Montalban	Hatt, Emily	Passmore, Adam
2.3	Bayesian Hierarchical Modelling and Machine Learning of Stellar Populations	G Davies	Leung, Ho-Hin	Westwood, Harry
2.4	Machine Learning Applications in Survey Astronomy	I Stevens	Jones, Cerys	Morrison, Jacob
2.5	The tidal destruction of local galaxies: Implications for galaxy formation and the origin of dark matter	S McGee	Moreland, Johnston	Winwood, Gregory
2.6	Modelling the Interaction of Space-Based Laser Interferometers with Gravitational Waves	C Moore, A Klein	Gangardt, Daria	Ling, Niamh
2.7	Spinning black holes from formation to detection: cracking the "isotropic stays isotropic" puzzle	D Gerosa	Aziz, Abdullah	Chan, Julian
2.8	Prospects for identifying spin misalignment in gravitational-wave observations of merging high-mass black hole binaries	P Schmidt	Dagnall, Tim	Nye, Gwion
2.9	Stellar interactions and transients	S Toonen	Barrett, Cameron	Winter, Jake
2.10	Time-domain Simulation of Gravitational-wave Detectors	H Miao, A Freise		
2.11	Measuring the chemical yields of neutron star mergers: how many sources do we need?	M Nicholl	Nuttall, James	Ridley, Evan
2.12	Constraining the Milky Way with gravitational waves	S Toonen, V Korol	Higginbotham, Samuel	Nicholls, Abbie
2.13	The dynamics of galaxy clusters at $z = 0.2$	G Smith, M Bianconi	Kolcu, Tutku	
<b>3</b>	<b>Condensed Matter/Nanoscale Physics/Metamaterials</b>	<b>Wolfgang Theis</b>		
3.1	Understanding Quantum Magnetism in Low Dimensions	M Chung	Binmore, Callum	Tam, Charles
3.2	Assembly of two-dimensional molecular frameworks	Q Guo	Fryer, Alex	O'Neill, Abbie
3.3	Design and characterisation of solid-state far-IR modulator for signal and image processing	A Kaplan		
3.4	Applying machine learning in scanning transmission electron microscopy (STEM)	W Theis	Gorania, Sayal	Sullivan, William
3.5	Computational THz imaging for liquid samples	M Navarro-Cía		
3.6	Reciprocity in plasmonic nano-antennas	A Demetriadou	Shatz, Tair	
3.7	Frontiers in Nanophotonics and Metamaterials (a)	M Navarro-Cía	Curwen, Will	Morfoot, Archie
3.8	Electrodeposition of iron into porous silicon for biomedical applications	L Canham	Worsley, Eleri	
<b>4</b>	<b>Nuclear Physics</b>	<b>Peter Jones</b>		
4.1	Nuclear Deformation in Gadolinium from Isotope Shifts and Hyperfine Structure	D Forest	Arthur, Isabelle	Millington, Lucy
4.2	Exploring quark deconfinement with jets at the Large Hadron Collider	P Jones		
4.3	Production of multistrange particles in pp collisions at $\sqrt{s} = 7$ TeV from the ALICE experiment	D Evans, R Lietava	Bateman, Jenny	Jones, Douglas
4.4	Developing novel proton radiotherapy modalities at the MC40 cyclotron	T Price, F Romano	Niu, Geoffrey	Taylor, Edward
4.5	Studying the physics of granular gases using PEPT	D Parker, K Windows-Yule	Sykes, Jack	Thomas, Huw
4.6	Measurements of nuclear reactions on the Birmingham MC40 cyclotron	C Wheldon, Tz Kokalova Wheldon	Smith, Lisa	Wilson, Katherine
<b>5</b>	<b>Particle Physics</b>	<b>Nigel Watson</b>		
5.1	Top quark measurements using ATLAS data from the LHC	CM Hawkes, MF Watson		
5.2	Large Hadron Collider (LHCb)	P Ilten, N Watson	Matthews, Jack	Miles, Hannah
5.3	Higgs Boson Production in Future ep Collisions at the LHeC	PR Newman, PD Thompson	Gann, Brendan	Greenhouse, Daniel
5.4	Photodiodes as beam probes for ATLAS irradiations	A Chisholm, K Nikolopoulos	Bowen, Fergus	Cowper, Jacob
5.5	Testing readout electronics of the ATLAS tracker upgrade	P Allport, JP Thomas	Dodd, Charlotte	Taylor, Rebecca
5.6	NEWS-G: Searching for Light Dark Matter with a Spherical Proportional Chamber	R Owen, K Nikolopoulos	Pierce-Brown, Dominic	Jake, Stanton
5.7	Calorimeter Trigger Algorithms for the LHC Upgrade	AT Watson, SJ Hillier		
5.8	Searches for new physics in rare kaon decays	E Goudzovsk, A Romano	Cooper-Bennun, Torin	Hunt, Daniel
5.9	Optimisation of current monitoring and beam quality at the high intensity irradiation line at the MC40 cyclotron	L Gonella, T Price	Attree, Nick	Matthews, Jonathan
5.10	Upgrade of the NEWS-G experiment for operation in SNOLAB	K Nikolopoulos, I Katsioulas	Evans, Ben	Tate, Joshua
5.11	Testing the electroweak theory at the LHC	D Charlton, A Chisholm	Lace, Madiza	Marinescu, Mihaela
5.12	Physics and detector R&D for a future e+e- collider	N Watson	Maple, Stephen	Stringer, Sarah
<b>6</b>	<b>Quantum Light and Matter</b>	<b>Giovanni Barontini</b>		
6.1	Making a Bose-Einstein Condensate	G Barontini	Swales, Rosie	Hewitt, Thomas
6.2	Building and characterising a position detector for quantum optics measurements	V Boyer	Harrison, Lucy	Dieudonne, Yannik
6.3	Adventures in light-matter interactions (b)	J Goldwin	Olney, Tabatha	Taylor, Keeley
<b>7</b>	<b>Quantum Sensing and Timing with Cold Atoms</b>	<b>Michael Holynski</b>		
7.1	High quality beam delivery for atom interferometry	M Holynski, J Vovrosh	Bowyer, Alfred	Jimenez, Javier
7.2	Simulation and modelling of atom interferometry	M Holynski, A Lamb, S Lellouch		
7.3	Advanced quantum control pulses in atom interferometry	K Bongs, Y-H Lien		
7.4	High flux atom sources	K Bongs, Y-H Lien	Hallam, James	White, Daniel
7.5	Slowing atoms using Rydberg states	Y Singh, Y Kale	Goodman, Jonathan	Riele, Alex
7.6	Setting up a GPS disciplined atomic clock in the lab	Y Singh, J Jones		