

PHY341

PHYSICS – THIRD YEAR PROJECT LIST

<u>No.</u>	<u>Supervisor(s)</u>	<u>Student(s)</u>	<u>Type</u>	<u>Project Title</u>
1.	Dr C Booth		C	Cooling the MICE target
2.	Dr C Booth	A Calovic K Klos	C	The high energy cosmic ray cut-off
3.	Dr C Booth	C Bromley C Lake	C	The Neutrino Factory and neutrino oscillations
4.	Dr S Cartwright		D/TE	Design of a first or second year option course
5.	Dr S Cartwright		C	Geoneutrinos
6.	Dr B Chakrabarti		T/C	Small molecule migration through complex networks and gels
7.	Dr B Chakrabarti		C	Using phase maps to understand thermodynamic phase diagrams
8.	Prof N Clarke		C	Nanoparticle diffusion in random networks
9.	Prof N Clarke		C	Can machine learning complement physical models?
10.	Prof J Cockburn		E	Physics of stringed musical instruments
11.	Prof M Fox		E	Atomic spectroscopy
12.	Prof M Fox		C	The student-project allocation problem
13.	Dr R Hawkins	J Bartram S Chapman	T/C	Tracking the family tree of bugs
14.	Dr P Kok		T	Quantum metrology – measurements at the Heisenberg limit
15.	Dr P Kok	C Valentin S Gaywood	T	Foundations of quantum mechanics
16.	Dr D Krizhanovskii		D/E	Laser optical beams carrying non-zero orbital angular momentum
17.	Dr D Krizhanovskii & M Sich		E/C	Spectroscopy of exciton polaritons
18.	Dr D Krizhanovskii & P Walker		C/D	Design of optical microstructures for on-chip nonlinear optical circuits
19.	Prof V Kudryavtsev		D	Has dark matter been discovered?
20.	Prof V Kudryavtsev & E Korolkova		C	Background events in the LZ dark matter experiment
21.	Prof V Kudryavtsev		C	Neutron production in radioactive processes
22.	Prof V Kudryavtsev		C	Activation of materials by cosmic rays
23.	Prof V Kudryavtsev & V Pec	L Leclézio J Warren	D	Designing a future dark matter experiment
24.	Dr M Mears	L Wakelin	E/T	Nanowaves and the glass transition
25.	Dr M Mears		E	The glass transition process at the liquid-surface interface
26.	Dr M Mears		E/D	A novel approach to measuring contact angles and viscosity for clinical applications
27.	Dr M Mears	T Appleyard N Holland	TE/D	The decay (rate) of education?
28.	Prof D Mowbray		D/E	The physics of photography
29.	Prof D Mowbray		E/C	Interfacing and sensing with a Raspberry Pi
30.	Prof D Mowbray		D/E	Construction of equipment to demonstrate the properties and applications of light
31.	Dr M Quinn		E/C	Chaotic simple pendulum: compare experiment with simulations

32.	Dr M Quinn		C	Investigate chaotic motion of a compound pendulum using numerical simulation methods
33.	Dr M Quinn		E	Investigate chaotic motion of a compound pendulum using experimental methods
34.	Prof N Spooner		E	Development of liquid argon particle detector technology for neutrino physics
35.	Prof N Spooner		E	New ways to measure and reduce environmental radon
36.	Prof N Spooner	G Mason D White	C/A	The COSINE-100 experimental search for Dark Matter particles in the Universe
37.	Prof A. Tartakovskii		C	Principles of magnetic resonance
38.	Prof A. Tartakovskii	B Rowlinson J Stenhouse	E	Optics of novel few-atom-thick two-dimensional materials
39.	Prof L Thompson		C	Development of a peak finding and fitting algorithm for the treatment of HPLC spectra
40.	Prof L Thompson		C	Motion of Particle Orbits in a Circular Storage Ring
41.	Prof D Tovey	J Heaton D Travers Mason	C/A	Lightning location with the Met Office LEELA network
42.	Dr T Vickey		C	Automating task scheduling for physicists
43.	Dr T Vickey	A Padam	T/C	The physics of SCUBA diving
44.	Dr T Vickey		D/E/C	Deep machine learning to identify semiconductor sensor imperfections
45.	Prof D Whittaker		T	Dielectric multilayers
46.	Prof D Whittaker	S Midgley L Newlove	E/T	Lorenz waterwheel
47.	Prof D Whittaker		E/T	The upside-down pendulum
48.	Prof D Whittaker		E/T	Bandstructure effects in coaxial cable networks

E	Experimental	T	Theory	C	Computational
A	Data analysis	D	Design	TE	Teaching

Please see your supervisor as soon as possible in order to start work on your project!

Dr Chris Booth – Room D24