



University of Glasgow | Department of
Physics & Astronomy

World-leading Research

Postgraduate Research Opportunities

Why choose Physics and Astronomy at Glasgow?

The department has an excellent reputation for its research. This makes it an exciting place to study for the degree of PhD by research in one of our world-leading research groups. Research and postgraduate training further benefit from our alliance with five other Scottish university physics departments through the Scottish Universities Physics Alliance (SUPA).

Our research students have access to state of the art facilities at Glasgow and most are able to participate in international projects.



Postgraduate Research Areas

Nuclear Physics



The Glasgow NPE group is engaged in a wide range of research studies to investigate the subatomic structure of matter. Our work uses high precision electromagnetic probes. We are also preparing for the next generation of experiments which will use electron, photon and antiproton beams.

Experimental facilities

The group currently has experimental programmes at:
FAIR@GSI, Darmstadt, Germany
Jefferson Lab, Newport News, VA, USA
MAInzer Mikrotron (MAMI), Mainz, Germany
MAXLAB, Lund, Sweden
DESY, Hamburg, Germany

www.nuclear.gla.ac.uk

Contact David Ireland:

d.ireland@physics.gla.ac.uk



Solid State Physics



We work in the area of materials physics investigating functional and structural materials with benefits as diverse as improved fuel economy in cars and more powerful computers and mobile phones.

Our expertise in Nanocharacterisation, Nanomagnetism and Quantum Transport provides insight into atomic scale phenomena. We use our expertise to make major contributions to multidisciplinary projects in the area of nanoscience and nanotechnology. Here fundamental physical limits as well as technological challenges determine what is possible and understanding is required to optimise performance.

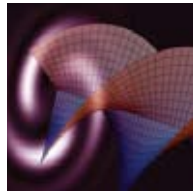
www.ssp.gla.ac.uk

Contact Alan Craven:

a.craven@physics.gla.ac.uk



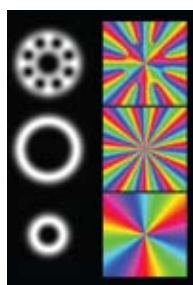
Optics



A 15-person team covering a wide spectrum from blue-sky research to applied commercial development, funded by a combination of government, charity and industry.

Themes:

Angular momentum of light & optical vortices
Metamaterials for light rays (METATOYS)
Optical tweezers
Atom optics
Optics for environmental gas monitoring
Laser modes: fractals and Bose-Einstein Condensates (BECs)
Medical optics for diagnostics and treatment



www.physics.gla.ac.uk/Optics/

Contact Miles Padgett:

m.padgett@physics.gla.ac.uk



Astronomy and Astrophysics

We conduct research and teaching in a wide range of topics in astrophysics. Principal among these are solar physics theory and observations, plasma physics, cosmology, and radio astronomy.

Themes:

Solar physics
Plasma theory
Cosmology
Microlensing
Radio astronomy

www.astro.gla.ac.uk
Contact Declan Diver:
declan@astro.gla.ac.uk

Particle Physics Theory

We are principally interested in phenomena that can be probed at current and next generation particle colliders, such as the Tevatron and the Large Hadron Collider. We use our current model of particle physics, the Standard Model, to make predictions that can be tested by our experimental colleagues.

We focus on the behaviour of the strong force as described by Quantum Chromodynamics, both in perturbation theory and on the lattice; the physics of the Higgs boson; and models beyond the Standard Model such as supersymmetry, extra dimensions and little Higgs.

www.physics.gla.ac.uk/ppt/
Contact David Miller:
d.miller@physics.gla.ac.uk



Institute for Gravitational Research

The work of this institute is concentrated on the development of detectors to search for gravitational waves from astrophysical sources.

Areas of research are precision novel interferometric techniques and the development of systems of ultra low mechanical loss for the suspensions of mirror test masses. The group is also involved in the space-based LISA mission and data analysis activities within the LIGO Scientific Collaboration.

www.physics.gla.ac.uk/igr/
Contact Jean Greig:
j.greig@physics.gla.ac.uk

Particle Physics Experimental

The experimental particle physics group at the University of Glasgow is dedicated to the study of the fundamental constituents of matter and their interaction. These activities are carried out in collaboration with international laboratories, where fundamental physics results are obtained.

To further these studies the group is developing future detector technologies for further experimentation and computer grids for analysis of data.

Themes:

ATLAS (LHC, CERN)
LHCb (LHC, CERN)
CDF (Tevatron, FNAL)
ZEUS (Hera, DESY)
Detector Development
Grid Development

www.physics.gla.ac.uk/ppe/
Contact Valerie Flood:
ppeadmin@physics.gla.ac.uk

Further information

Scholarships / Funding / Admissions

Contact the Graduate Admissions Tutor: Dr David Miller

Email: grad.admissions@physics.gla.ac.uk

Telephone: +44 141 330 4926

Online application: www.physicalsciences.gla.ac.uk



Don't take our word for it...



“ ... the support and expertise present in the group encourages and motivates me ”

Hasan Mushfique
PhD student in the Optics group 2005/06

“ I have had the opportunity to travel to several conferences in the US and Europe ... all very valuable experience ”

Laura Bone
PhD student in the A&A group 2005/06



“ Spending time in the lab running experiments allows my work to be very hands-on and fun! ”

Stuart Reid
former PhD student and now Postdoc in the Institute for Gravitational Research

“ Over the past two years I have been able to give presentations at several conferences around the globe ”

Réjean Dupuis
PhD student in the Astronomy & Astrophysics group / Institute for Gravitational Research



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