University of BRISTOL

Physics at Bristol

2020

@UniBrisPhysics

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Why choose Bristol?

- Challenging, rigorous and stimulating degrees, with flexibility to change focus.
- World-class research underpinning our teaching, giving you amazing research opportunities.
- Friendly, supportive department with a great student society.
- Skills for employability and links with industry giving excellent careers prospects.

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Bristol physics degrees

- Very different from A-level!
- More mathematical, more challenging and more rewarding
- First year includes physics and maths and options (depending on degree)
- Astrophysics, language, Bristol Futures units on Innovation, Sustainability, Global Citizenship.
- Roughly 20 hours per week contact time in lectures, tutorials, labs and workshops.
- Flexible degrees with many optional units.

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Subject highlights include

Year 1 – breadth and new material

Special relativity, waves, fields, thermodynamics.

Year 2 – the core of modern & classical physics

Cosmology, quantum mechanics, electromagnetism…

Year 3 – options galore!

Particle physics, high-energy astrophysics, biophysics, nanophysics, environmental physics, theoretical physics, computational physics and more.

Year 4 – advanced options

General relativity, astrophysical plasmas, nuclear reactor physics, superconductivity and magnetism, advanced quantum physics and more.

View the unit choices currently available for Physics degrees.

Available units may be subject to change.

Tutorials

- Usually five students in a tutorial group
- Your tutor is a Physics lecturer
- Get to know an academic who will be your personal tutor throughout your degree
- Meet regularly during your first year
  - Ask questions in a small group
  - Discuss physics beyond the lecture material
- Meet at least twice per term after first year
  - Progress checks; advice on choosing options and careers

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Lectures

- Class sizes from around 15 to 250 students
- Almost all recorded for you to review later - great for revision or recapping tricky points.
- Typical unit (although a lot of variation):
  - 15-20 lectures over 6 weeks
  - Office hours for lecturer
  - Assessed by examination, but many include coursework
- Many units have problems classes in smaller groups to practice tackling questions on course material.

Experimental work

- Build from one-day experiments in 1st year to 4-6 week advanced labs
- Supported by the Dynamic Lab Manual
  - Interactive tool to review experiments and background theory in advance
- Computing options in years 2-4
- All build towards your final year project

Example day

An example timetable for a first year Physics with Astrophysics student in 2019.

8.40am	Leave Halls and cycle to campus (10 mins)
9am	Oscillations and waves lecture in the Powell lecture theatre
10am	Physics tutorial
11am	Go to the physics library to work with friends on core physics problems
12pm	Maths 1A20 lecture in Maths building
1pm	Lunch in garden and coffee in PhysBar
2pm	Astronomy practical in the Tyndall lecture theatre
5pm	Return to Halls for dinner
8pm	Go to the students' union for a meeting of the Nerf Society (one of over 350 societies available)

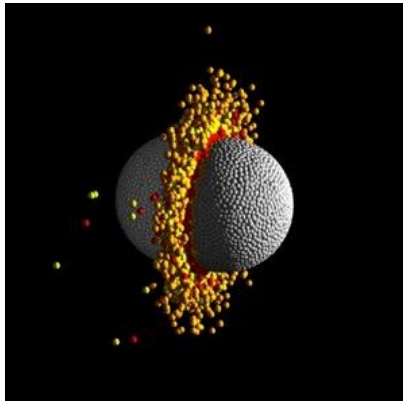
Our research

We study physics from the largest things in the Universe to the smallest and everything in between.

Final-year projects are available in all of our research areas.

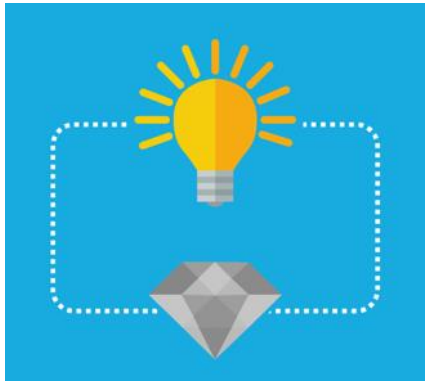
Use the links to explore our research themes and drill down to see our many specialisms:

- Materials & Devices
- Quantum Engineering Technologies
- Astrophysics
- Particle Physics
- Quantum & Soft Matter
- Theoretical Physics



Simulations showing huge iron core in Kepler-107c could be formed by giant collision
Find out more

Diamond batteries made from nuclear waste that last thousands of years.
Find out more



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Final-year projects

- Spend a quarter or half of your final year doing original research in the area of physics that most fascinates you.
- Access our world class facilities for your research work.
- We also offer a Physics Education Unit, giving you the opportunity to work in a local school.
- BSc students can choose a Group Industry Project to do research in collaboration with an employer.

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Final-year projects

The most successful final-year projects can be published in research journals.

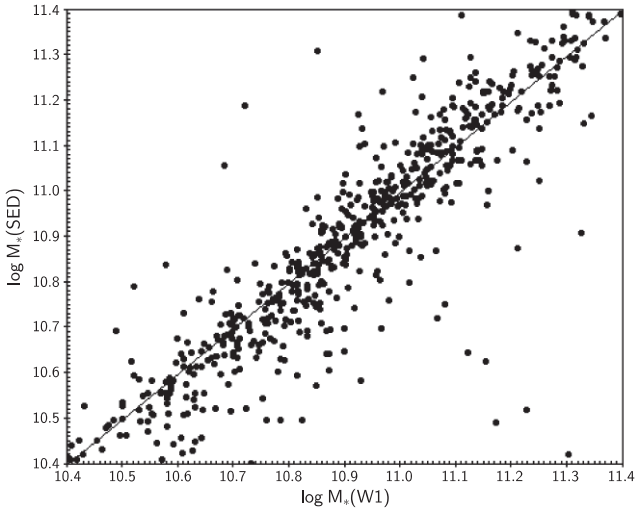
Tom Kettlety and Jane Hesling's final year project was published in 2018 in the Monthly Notices of the Royal Astronomical Society and has received nine citations already!

Monthly Notices of the ROYAL ASTRONOMICAL SOCIETY

MNRAS 473, 776–783 (2018) doi:10.1093/mnras/stx2379
Advance Access publication 2017 September 13

Galaxy and mass assembly (GAMA): the consistency of GAMA and *WISE* derived mass-to-light ratios

T. Kettlety,[1,2] J. Hesling,[1] S. Phillipps,[1‹] M. N. Bremer,[1] M. E. Cluver,[3]
E. N. Taylor,[4] J. Bland-Hawthorn,[5] S. Brough,[6] R. De Propris,[7] S. P. Driver,[8,9]
B. W. Holwerda,[10] L. S. Kelvin,[11] W. Sutherland[12] and A. H. Wright[13]



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Student societies: CHAOS

- CHAOS is the largest departmental society at the University with over 600 members.
- First society to launch its own LGBT+ network
- Social events
  - BBQ, Physball, film screenings, trips, sports teams
  - Run PhysBar – the student coffee bar
- Supporting your studies
  - Book sale, guest lectures, mentoring scheme.

At the National Societies Awards Chaos won:
- Best Academic and Careers Society (2018)
- Best Overall Society (2019)

http://www.bristolchaos.com

A welcoming and supportive environment

You will feel part of a diverse community of students and staff. The Class of 2019 included:

- 30% female students
- 8% mature students
- 11% with declared disability
- 19% non-UK (30 nationalities!)

Pastoral support through tutors and University services

Five Wellbeing Advisers in the Faculty of Science, with dedicated space in the Department of Physics.

Support for students with disabilities.

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Learn transferable skills throughout your degree

- Clear communication of complex ideas
  - Write popular and technical articles and give presentations
  - e.g. currently third-years can choose the International Mentoring unit in which they give physics tutorials by video link to high school students overseas.
- Computational skills
  - Use programming to model and solve complicated systems and acquire and analyse data in labs.
- Problem solving & analytical skills
  - Extract key information from complex real-world problems

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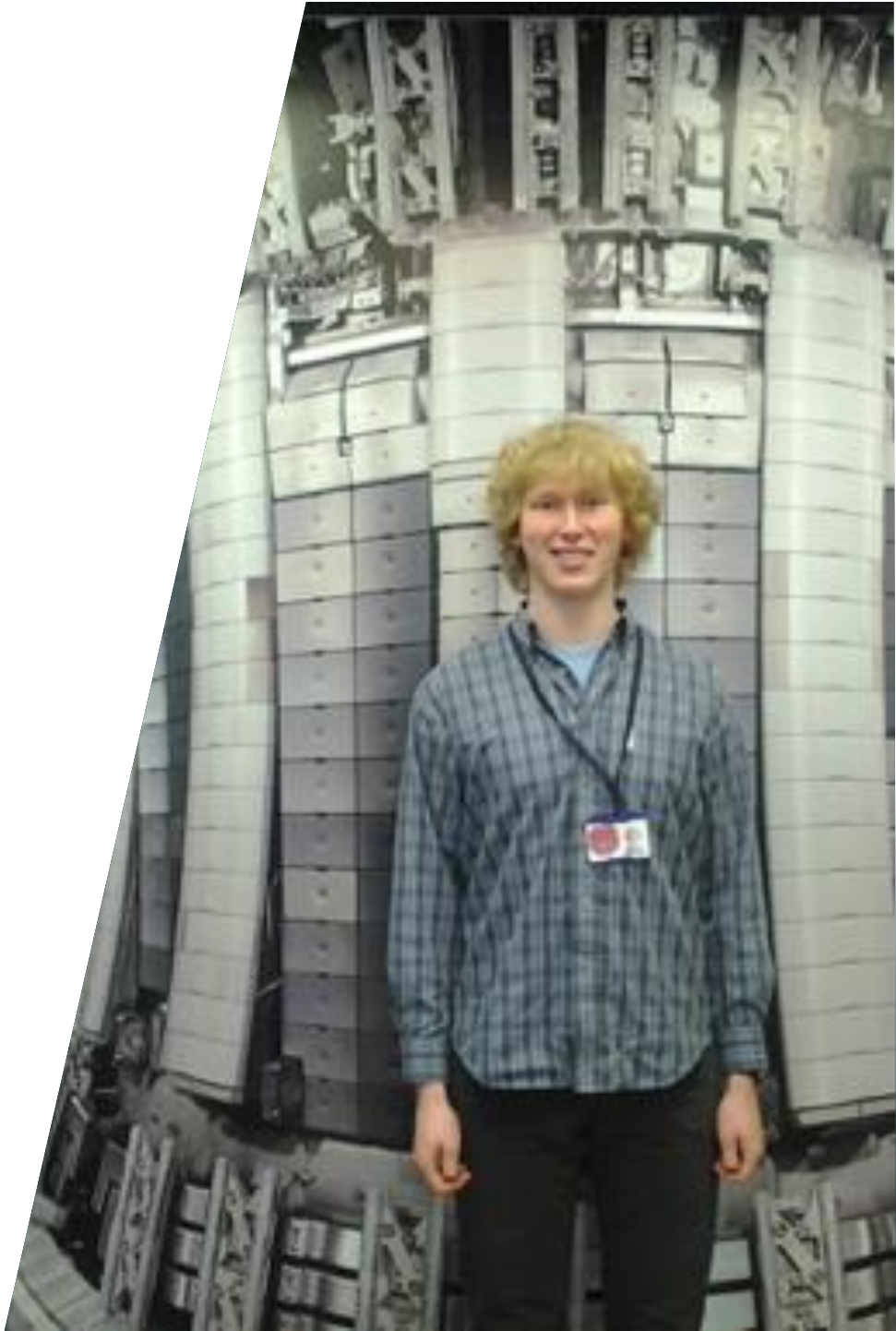
Employability

- Skillsets: optional three-day business game for second years
  - Develop a business plan, judged by academics and key employers
  - Interview, networking and presentation skills training
- Skills for Science unit for BSc students
  - CV writing, career advice, interview training
- Our careers service offers Bristol Plus Award for professional development
- We talk to employers through our Industry advisory board
  - Ensures our skills training matches employers' needs

Employability

- Group industry project for BSc students
  - Work on R&D project set by employer e.g. Sellafield, Bristol Zoo, Siemens
- Physics with Industrial Experience
  - Third year spent on placement with employer doing paid R&D work e.g. Culham Centre for Fusion Energy, Airbus, Sharp…
  - Students on other physics degrees can usually transfer to this degree in first or second year
- 4th most targeted university by employers (High Fliers 2020)
  - Around 500 employers visit the University during the autumn term



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Thank you.

If you have any questions, please email us:
choosebristol-ug@bristol.ac.uk

Please note: The information shown about specific units and future academic years is subject to change. Check our website for the most up-to-date information.

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