



**Women & Non-Binary
Individuals in Physics Society
A Year in Review**

July 2023

Imperial College Society for Women and Non-Binary Individuals in Physics

Year in Review: 2022-2023

- 357 Members (~70% of gender minorities in Blackett)
- 517 Instagram + Twitter Followers
- 21 Socials, Training & Outreach, and Discussion Events

SEPTEMBER - OCTOBER

Imperial Open Day
Fresher's Fair Stall
Pub Crawl + Pizza Night
GirlsWhoML Coding Course
#WomenonWednesdays Launch

NOVEMBER

London WiP Cocktail Night
Hosted FUSE, IOP Student Conference

DECEMBER

Christmas Ice Skating
PhD Panel
Staff + PhD Breakfast Social

JANUARY

Safe Space Lunches:
Queering Science
with Dr. Ellie Armstrong
Sexual Harassment in Academia
with Dr. Adrija Dey, 1752 group

FEBRUARY

Safe Space Lunches:
A Feminist Perspective on
the UCU Strikes
with Dr. Isabel Rabey

MARCH - APRIL

International Women's Day
Mingle, Breakfast and Sky
Garden evening
CUWiP
Physics Offer-Holder Open Day

JUNE

End-of-year picnic
Imperial and Project Open Days
Great Exhibition Road Festival
with Ginevra Casati

OTHER ACHIEVEMENTS

IOP Jocelyn Bell-Burnell Medal to President Amy Smith
Imperial Julia Higgins Medal to Staff Rep Dr. Isabel Rabey
EDI Seed Fund Award for WNBIP 2023/24 Mentoring Scheme
Secured funding for 2 CUWiP Attendees

Table of Contents

Committee Members 2022/23	1
Why the name change?	2
Status of Women at Imperial	2
Engagement	3
Membership	3
Instagram.....	4
Events	4
Social events	4
Networking.....	5
<i>FUSE: IOP Student conference</i>	5
<i>Networking events</i>	6
Professional development	6
<i>GirlsWhoML</i>	6
<i>CUWiP</i>	7
<i>#WomenOnWednesdays</i>	8
<i>International Women’s Day</i>	9
<i>Safe space lunches</i>	10
Our Network	11
IOP	11
London Women in Physics Network.....	11
Outreach	12
Open days.....	12
Great Exhibition Road Festival	13
Connection with ICLMS.....	13
Awards	13
The Future	14
Mentoring scheme	14
Outreach Programme	14

Committee Members 2022/23

The committee has grown substantially compared to last year. We remain a mixture of undergraduate students, postgraduate students, and staff. Thanks to everyone who helped make the society function this year!



PRESIDENT
Amy Smith
PhD Student
Physics Education
Group



VICE PRESIDENT
Dr Jessie Durk
Postdoctoral
Researcher
Physics Education
Group



SECRETARY
Amaya Calvo Sánchez
3rd Year
Undergraduate



TREASURER
Maia Searle
2nd Year
Undergraduate



**SOCIAL MEDIA
OFFICER**
Amy Thornton
2nd Year
Undergraduate



**OUTREACH
COORDINATOR**
Jasmine Ajaz
2nd Year
Undergraduate



**EVENTS
COORDINATOR
(CAREERS)**
Adèle Julia
4th Year
Undergraduate



**EVENTS
COORDINATOR
(SOCIALS)**
Alexandra Dahlgren
2nd Year
Undergraduate



**EVENTS
COORDINATOR
(SOCIALS)**
Chenying Zhang
2nd Year
Undergraduate



UG REP
Laura Hollister
2nd Year
Undergraduate



STAFF REP
Dr Isabel Rabey
Teaching Fellow

Why the name change?

In summer 2022, we decided to change our name from the Women in Physics Society (WiP) to the Women and Non-Binary Individuals in Physics Society (WNBiP).

The Women in Physics Society was set up to create a supportive and inclusive community for women in the Department of Physics to socialise, to share experiences and to empower each other. Women face numerous challenges within physics, which are often amplified by the stark gender imbalance. Women are not alone in facing these issues – non-binary people are also significantly underrepresented and experience similar exclusionary behaviour and institutional barriers.

Gender equality cannot exist without equality for all. Anyone who pushes against imposed societal stereotypes is helping to create the cultural change we need to achieve this. As a society, our primary aim has not changed – we want physics to be an inclusive space for everyone. To better represent this ambition, we have decided to change our name to Women and Non-Binary Individuals in Physics. Anyone can be a physicist, even if they don't "fit in". We want to support people to follow their passions; our society will continue to create events which promote community, as well as raise awareness on the issues underrepresented groups may face and how they can work to better improve the situation for themselves and each other.

By changing our name, we are adding to our support system, and not taking away: safe spaces will still be promoted when sensitive topics are discussed. But, as always, our society and events are open for any individual who supports the progression of underrepresented people in physics, including men, and we welcome the allyship.

Status of Women at Imperial

Women are still significantly underrepresented in the Department of Physics at Imperial. Table 1 shows the number of people who identify as women at every level, from UG to staff for the academic year 2022 – 2023 (data collected July 2023). We only have access to registry data, which categorises people as man or woman only.

This year, the department hired two new permanent women academic staff members – welcome to Dr. Julie Euvrard (EXSS) and Dr. Eleanor Tubman (PLAS)!

Level	Number	Percentage	% change from Sep 2021
Undergraduate	254	27.9%	+0.3%
1 st year UG	68	27.6%	-3.3%
2 nd year UG	80	31.0%	+5.0%
3 rd year UG	64	25.9%	-1.6%
4 th year UG	42	26.0%	+1.0%
Postgraduate	146	27.4%	+0.3%
PGT	57	26.3%	-8.7%
PGR	89	28.2%	+5.2%
Staff (incl. postdocs, admin, technicians)	77	18.7%	0.0%
Permanent academic staff	15	11.5%	+1.1%

Table 1: Women in physics for the academic year 2022-2023. Data collected July 2023.

Engagement

Membership

Anyone can join the Women & Non-Binary Individuals in Physics Society. All they need to do is sign up to our [mailing list](#).

Over the past year, we made a lot of effort to recruit new members. Posters were put up around the department, we had a stall at the Fresher's fair for the first time ever, and Isabel Rabey did "shout outs" in all the undergraduate and postgraduate welcome events during the first few weeks of term.

From our membership statistics, the number of active subscribers has increased by 33.7%; almost 90 new members have joined the society since July 2019, as shown in Fig. 1. Our membership breakdown by academic level is shown in Fig. 2. Our new members are mostly undergraduate students (39 new members). Many of our older (pre-2020) undergraduate members have graduated to become postgraduate students, or postgraduate students have become to research associates, research assistants, and fellows – congratulations to them!

Comparing to the number of women in the department, our society strongly represents the student body – 68% of undergraduate women and 72% of postgraduate women are members of Women & Non-Binary in Physics.

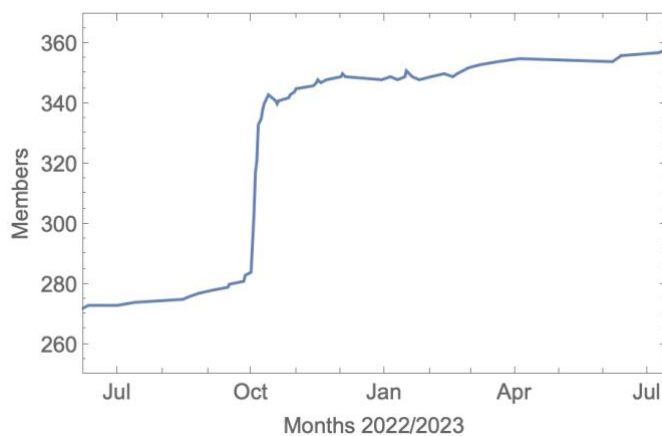


Fig. 1: Women & Non-Binary in Physics membership, July 2022 – July 2023.

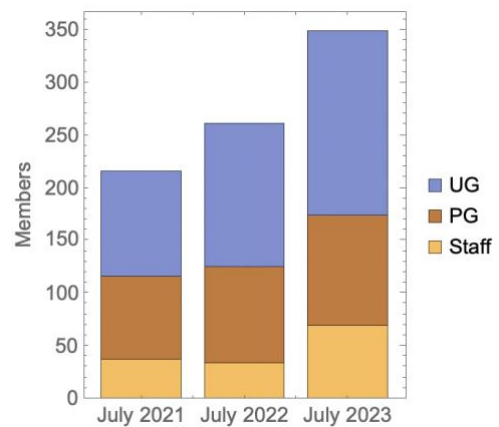


Fig. 2: Membership breakdown.

Instagram

Our Instagram page [@ic_wnbip](#) continues to be a success story – we now have over 400 followers! As shown in Fig. 3, we have gained over 150 new followers in a year, an increase of 65% from July 2022. From our Instagram statistics, Fig. 4, we find that 70% of our followers are women, 30% men (Instagram does not provide data on non-binary people).

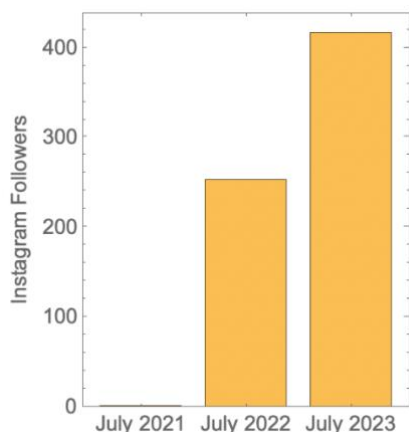


Fig. 3: Instagram followers.

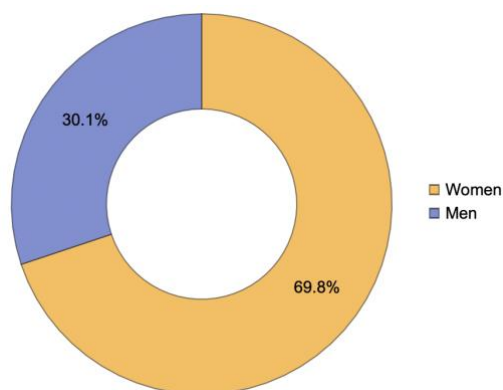


Fig. 4: Sex breakdown of Instagram followers.

Events

Social events

We hosted several social events over the year, as shown in Table 2, with the return of our ever-popular ice skating and end-of-year picnic.

Date	Event
19 th October 2022	Welcome event Pub crawl + pizza
28 th November 2022	London Women in Physics Network Cocktail night
12 th December 2022	Christmas Party Ice skating at Winter Wonderland
6 th / 8 th March 2023	International Women's Day Lunchtime mingle + Breakfast + Sky Garden
21 st June 2023	End of year celebration Picnic

Table 2: List of social events organised for the academic year 2022/23.



Fig. 5: Posters from our social events 2022/23.

Networking

FUSE: IOP Student conference

[Forum of University Societies Event](#) (FUSE) is an annual event which gives committee members of Institute of Physics (IOP) affiliated societies the opportunity to come together, network and socialise, celebrate their society achievements, and share ideas and best practice.

This year, the event was hosted and organised by our society. Adèle Julia, Amy Thornton, and Jasmine Ajaz worked alongside the IOP Student Engagement Officer to invite physics societies from across the UK to the Institute of Physics, London.

The event took place on 26th and 27th November 2022 and was attended by more than 20 people from across the UK, 8 different institutions representing Physics and Astrophysics societies.

As a result of our society being asked to host this year's FUSE conference, the theme was inclusivity within the physics community. The attending societies took turns presenting about themselves and the ways they encourage an inclusive environment in their respective departments. Attendees were tasked with team building exercises and were provided with overnight accommodation nearby in a hostel. Speakers from the IOP shared their initiatives for improving inclusivity such as their Limit Less: Bin the Boffin campaign aimed at changing the ["limited, outdated portrayals of what physicists look and act like in the media"](#).

The event was a great success and we are grateful to the Institute of Physics for giving us the opportunity to organise and host!

Networking events

We organised two networking sessions this year, both of which will make regular appearances on our calendar in future years.

Date	Event
6 th December 2022	PhD Panel Four current PhD students – Sanjee Panditharatne, Mengbo Long, Elisa Jacquet, Michaela Flegrova – sat on the panel and answered questions about what it's like to do a PhD, the application process, and how to decide the topic.
8 th December 2022	Staff + PhD Breakfast Staff, although always welcome, are sometimes apprehensive to attend events that seem to be targeted at undergraduates. To try and increase staff engagement with our society, we organised a staff and PhD breakfast on level 8. This was a popular event, around 20 people attended, and we plan to repeat this event again in the future.

Table 3: Networking events organised in the academic year 2022/23.

Professional development

GirlsWhoML



[GirlsWhoML](#) aims encourage those who identify as female and non-binary into the field of machine learning and to help people from these underrepresented groups become familiar with ML concepts and skills in an open and supportive environment. This is a not-for-profit organisation and was founded by the [Oxford Women in Computing Society](#) in 2020. Following sponsorship from Microsoft, the organisers wanted to extend this course to other universities. The first Imperial event in 2022 was the first GirlsWhoML event outside of Oxford.

This year, GirlsWhoML was organised across faculties by the Women in Physics Society in conjunction with the [Women & Non-Binary Individuals in Computing Society](#) – Isabel Rabey (WNBiP, co-lead), Dominika Woszczyk (WNBiC, co-lead), Adèle Julia (WNBiP), Maia Searle (WNBiP), Dyuti Chakraborty (WNBiC), and Adhithi Kedlaya (WNBiC). Imperial GirlsWhoML course consisted of five 2-hour sessions that happened weekly from Weds 26th Oct – Weds 23rd Nov. These sessions started with an hour lecture followed by an hour working through example exercises in small group sessions

with experienced lecturers and demonstrators. This was the first-time GirlsWhoML had ever been run in-person.

Over 70 undergraduates and postgraduates from Computing, Physics, Bioengineering, Chemistry, Mathematics, Life Sciences, Surgery & Cancer, and Design Engineering signed up to this course. Lecture Theatre 2 (Blackett) was full for the first several sessions, with around 30 continuing until the end of the course. The departmental breakdown and academic level of the attendees is shown in Figs. 6 and 7.

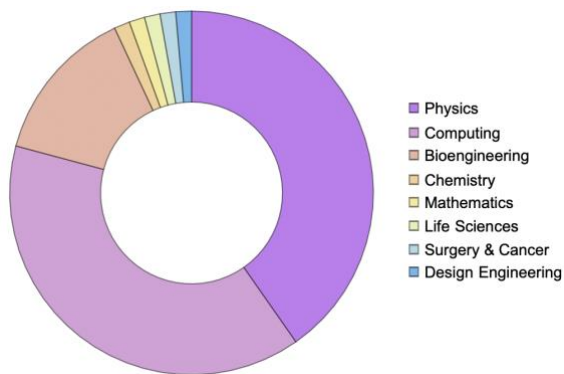


Fig 6: GirlsWhoML was a cross-faculty event with people attending from Natural Sciences, Engineering, and Medicine.

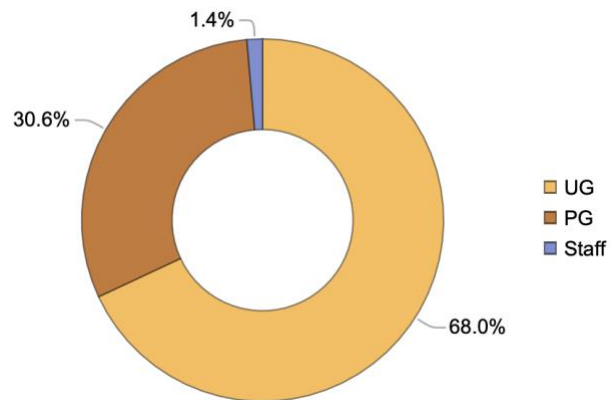


Fig 7: A range of levels attended the workshop series.

CUWiP



Fig. 8: Yuqing Wu (left) and Adèle Julia (right) at the CUWiP conference.

Adèle Julia and Yuqing Wu – two fourth-year undergraduates – attended the [Conference for Undergraduate Women and Non-Binary Physicists \(CUWiP\)](#), Liverpool, 23rd – 26th March 2023. Their registration fee and travel were generously supported by the department.

Their experiences are recorded in [our blog](#). Both had an incredible time, with Adèle saying “CUWiP is one of my best memories of my time at Imperial”.



Raising Awareness

#WomenOnWednesdays

Our popular #WomenOnWednesdays campaign returned for a second year in October – December 2022. Showcasing some of the amazing women working and studying in our department, their interviews are featured on [our Instagram](#), [our blog](#), and as posters around the department.

Who we interviewed:

1. Trinity Stenhouse, UG Student
2. Meriam Berboucha, PhD Student
3. Katie Marrow, PhD Student
4. Elizabeth Pastatembou, PhD Student
5. Adriana Bercebal, UG Student
6. Alie Craplet, PhD Student
7. Dr Heather Graven, Reader in Climate Physics
8. Dr Sarah Thomas, Imperial College Research Fellow
9. Dr Christina Schoettler, Research Associate



Heather Graven

#WomenonWednesdays at the Department 🔍

Q: What was your path into Physics and your current research?

A: I was always interested in science and Physics but my degree was actually in Chemical Engineering. I did that at Caltech, so we did quite a bit of Physics even if I was in a different major. Then I did my PhD in Earth Science. It's great to be here in Physics at Imperial and I do use lots of different physics in my research, which is one of the things that I think is really great about it. We use accelerators to make radiocarbon measurements, we use laser spectrometers for other atmospheric measurements, we do lots of fluid dynamics and modelling with high-performance computers.

Q: Which other departments do you work with?

I have done projects with people in Life Sciences, Maths, and the Centre for Environmental Policy, and I also interact with people in Earth Sciences and Civil Engineering. In studying greenhouse gases in the atmosphere, I have to think about physics, but also chemistry, biology and human activities, which is really interesting to me.

Q: How has your research evolved? What did you do for your PhD thesis and how has that changed into what you do now?

A: I would say that what I do now is still quite similar – studying carbon dioxide in the atmosphere and the global carbon cycle. Carbon is exchanging through the atmosphere, the ocean, and the plants and soils on land, and I try to use radiocarbon measurements to get a better understanding of all of that cycling, as well as how human activities are impacting that.

In my PhD, I was mostly focused on measurements of radiocarbon in atmospheric CO₂. I did a lot of measurements at an accelerator facility at Lawrence Livermore National Lab. I was based in San Diego in California, at UCSD, and then I would periodically go up to Livermore for a month or so to do measurements. My supervisor and I would run the accelerator for the entire weekend, because we'd try to run it in a special way to get very high precision measurements. We would take turns sleeping on the sofa in the control room of the accelerator facility!

I did a lot of work to analyze the data, but I realized that I needed to learn about modelling to have more capabilities for interpreting the data. I went to ETH Zürich for a postdoc for two and a half years. There I was doing atmospheric modelling and ocean modelling. I went back to UCSD for a couple of years and then I came here in 2013. Now I do both measurements and modelling in my research.

Q: What advice would you have for yourself as an undergrad/PhD student, to help you through those long nights at the accelerator?

A: At Caltech, we had a lot of work, usually with assessed problem sheets due every week in every course, which led to a lot of late nights. Having to do that instilled quite a work ethic, which carried over to the PhD. In terms of culture, at least where I was working (this probably depends on where you are, I think even different places around Imperial have different cultures), we'd typically work at least one day on the weekend. It was something that I was used to, but it's probably not as productive to be working all the time. It's probably better to take your weekends off (which I do now), because once you get really tired and burnt out, you're not going to be effective anymore.

Figure 9: #WomenOnWednesdays interview 7 (30th November 2022), with Dr. Heather Graven, Reader in Climate Physics.

International Women's Day



Fig. 10: International Women's Day 2023 in the Department of Physics.

International Women's Day was a big celebration in the Department of Physics this year, with several different events planned.

On Monday 6th March, in collaboration with PhySoc, we hosted a #WomenOnWednesdays poster display with lunch for everyone in the department. We also organised a professional photographer to take photos of all the women in the department, as shown in Fig. 10. This was hugely popular, and

we are planning to make this an annual tradition! We also designed and gave out **Embrace Equity** badges for people to wear to demonstrate allyship.

On Wednesday 8th March – International Women’s Day – we hosted a breakfast on level 8. 85 women signed up to attend the breakfast, which was an amazing response.

In the evening, we organised 30 free tickets to go to London’s Sky Garden which also sold out.

Safe space lunches



In term 2, we restarted our Safe Space lunch series, two of which were carried over from last year as a result of the strike disruption.

Date	Event
16 th January 2023	Queering Science Dr Ellie Armstrong, Stockholm University
24 th January 2023	Sexual Harassment in Academia Dr Adrija Dey, <u>1752 Group</u>
24 th February 2023	A Feminist Perspective on the UCU Strikes Dr Isabel Rabey, Imperial College London

Table 4: Safe space lunches in the academic year 2022/23.

Our Network

IOP

In 2022, we retained our gold status as an [IOP affiliated student society](#). We remain the only Women in Physics group in the UK to be affiliated with the IOP.

London Women in Physics Network



Over summer 2022, we reached out to other Women in Physics communities at universities across London; [UCL Women in Physics](#) (chaired by Fern Pannell), [KCL Womxn in Physics](#) (chaired by Priyanka Jorge), and Queen Mary University London (lead by their gender champion, Tessa Baker).

With these groups, we arranged a cocktail night at Simmons Bar, Euston Square for all four universities to meet. This was the first official meeting of all four universities for the first time ever. Each university contributed £100 to the bar tab, which sold out in less than two hours, even with 2-for-1 cocktails on offer. One of the biggest successes of the evening was that we had roughly equal representation from each of the universities, as shown in Fig. 11.

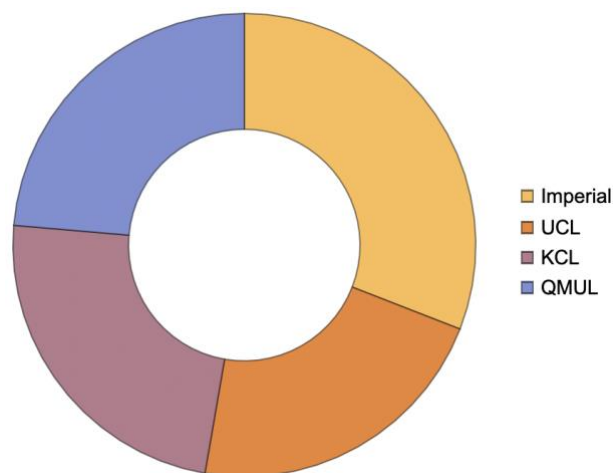


Fig 11: 57 people signed up to attend the London Women in Physics event, with roughly equal representation from all four universities.

Outreach

Open days

We attended the Physics Open days for the first time this year. We had a WNBiP stall at the open days on:

- Open days:
 - Saturday 17th September 2022
 - Wednesday 28th June 2023
 - Thursday 29th June 2023
- Offer holder open day:
 - Wednesday 26th April 2023
- First-year project open days:
 - Monday 19th June 2023
 - Tuesday 20th June 2023

As part of this, we launched our super popular tote bag and badge design, designed by Alexandra Dahlgren, as shown in Fig. 12.



Fig. 12: Tote bag and badges used for open days, designed by Alexandra Dahlgren

Great Exhibition Road Festival



Fig. 13: Ginevra Casati telling her story at the Great Exhibition Road Festival

Jasmine Ajaz and Isabel Rabey applied to run a live #WomenOnWednesdays event during the [Great Exhibition Road Festival](#), 17th – 18th June 2023. Due to the high demand for spaces (the organisers had over 100 proposals) we were awarded one storytelling slot to fill.

Ginevra Casati, a PhD student in the Plasma Physics group, was able to tell her personal 15-minute story of awe and wonder: “[Looking Up to Our Favourite Constellations](#)”. As part of this process, Ginevra also received storytelling training to help her prepare for the event. Her reflections on the experience is recorded in [our blog](#).

Connection with ICLMS

As part of our ongoing ambition to improve the outreach projects of our society, we have built a connection with the new [Imperial College London Maths School](#) (ICLMS), opening September 2023. On 11th July 2023, Jasmine Ajaz and Isabel Rabey went to their offer holder open evening, specifically targeted for women and non-binary pupils.

Next year, we will be working with the school to provide mentoring to women and non-binary pupils studying physics A-level at this school, particularly those who want to study Physics at university. This will include access to role models, lab tours, and support with their UCAS statement.

Awards

In November 2022, Amy Smith was awarded the [Jocelyn Bell-Burnell Medal](#) by the IOP for, among other things, her work in reinvigorating the Women in Physics Society at Imperial – Congratulations Amy!

In June 2023, Isabel Rabey was awarded the [Julia Higgins Medal](#) for her work to changing the culture within the Department of Physics, organising numerous events in the department and across college, and mentoring and championing women in the department – Congratulations Izzie!

In July 2023, WNBIP Society was awarded £1726.30 by the [Imperial College EDI Seed Fund](#) to support the UG to PhD mentoring scheme for the academic year 2023/24.

The Future

Mentoring scheme

In the academic year 2023/24, we will establish a mentoring scheme that will support and encourage women and non-binary students to pursue postgraduate research in physics. Third- and fourth-year undergraduate students will be thoughtfully matched with current PhD student mentors, and, through a series of regular one-on-one meetings and community-building activities, we will create a cohort of students who are empowered and confident to take the next step along the academic career path. This programme aims to

- 1) create meaningful relationships within a community that supports and encourages women and non-binary individuals to explore PhD opportunities in physics,
- 2) provide realistic and tangible women and non-binary role models who are completing their PhD research,
- 3) support the personal and professional development of both mentors and mentees,
- 4) improve the retention of women and non-binary individuals in the academic pipeline.

Our programme will look specifically at the undergraduate to PhD transition, which can be intimidating and, when combined with a lack of role models, can put people off. Our target audience will be third- and fourth-year women and non-binary undergraduates who are considering applying to PhD positions. In the first year, we will aim to recruit no more than 10 mentors from the PhD student community. Mentors will be carefully selected through personal emails and if needed, an open call; importantly, each mentor should demonstrate passion for promoting diversity and inclusion in physics. We aim to recruit from a spectrum of demographics and research areas. In total, the cohort will have a maximum size of 20 – a manageable number of people that can build a tight-knit community. One-on-one meetings and cohort activities will take place fortnightly.

Mentoring schemes are an important and impactful tool for improving diversity in STEM. The burden of acting as a mentor, although rewarding, typically falls on those who are already underrepresented. It is important for both the success and longevity of the scheme that it does not rely on volunteers – there should be a significant reward to incentivise participation in this scheme. The money from the [EDI Seed Fund](#) will be used to pay the PhD student mentors.

Outreach Programme

[Evidence](#) has shown that a sustained programme of outreach is the best way to recruit and retain underrepresented students into physics. Also, reaching students before they lose interest in physics at the GCSE/A-level transition.

Following the success of Hull university's outreach programme, they are now at 45% women in their undergraduate cohort. We plan to design and implement a scheme in the form of a STEM club at a local school, targeted towards students in Years 7-9, with the aim of promoting interest and engagement with Physics which they will hopefully take with them into further study.

Over Summer 2023, we aim to create five workshop-style sessions to deliver to a school, with the collaboration of staff and students from the department as well as committee members. These sessions will value practical work, curiosity and collaboration, and enjoyment of the subject above all else, obtained organically from the satisfaction of being able to answer a 'big question' about how

the world works – example ideas include ‘how do aeroplanes fly?’ or ‘why are fireworks different colours?’

We hope to develop a long-term relationship with this local school, such that we can continuously adapt and improve the impact we are able to offer.