

EXPLORING THE WORKPLACE FOR LGBT+ PHYSICAL SCIENTISTS

A report by the Institute of Physics, Royal Astronomical Society
and Royal Society of Chemistry



 ROYAL SOCIETY
OF CHEMISTRY

IOP Institute of Physics

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Exploring the workplace for LGBT+ physical scientists

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Letter from the CEOs

The Institute of Physics, Royal Astronomical Society and the Royal Society of Chemistry have a long history of commitment to increasing diversity and inclusion in the physical sciences.

There's a wealth of evidence that science benefits from a diversity of thought, experience and background. Yet our workplaces are not always the inclusive environments we need to foster a diverse workforce.

Tackling the barriers that LGBT+ physical scientists face can create broader benefits. Encouraging an inclusive culture is not only the right thing to do – it can help actively cultivate a positive climate for diversity and inclusion for all.

We celebrate the examples of supportive employers and their good practices but there is much still to do. Some things are small and can be done by individuals. Some things are big and need the support of employers and funders.

As professional and membership bodies, we have the responsibility to take the lead.

This report seeks to both inform our community and reaffirm our commitment to working on this important agenda, especially with our partners in higher education, industry and the wider scientific community.

Together we can make the change: to make science accessible to everyone.



Paul Hardaker
CEO
Institute of Physics



Philip Diamond
Executive Director
Royal Astronomical Society



Robert Parker
CEO
Royal Society of Chemistry

Summary of key findings

The Institute of Physics, Royal Astronomical Society and Royal Society of Chemistry have been working together to create a network of support for members of the physical sciences community who identified as LGBT+, and their allies. We established a LGBT+ member-led steering group to oversee this work.

To investigate the needs of LGBT+ physical scientists, we surveyed those working in the physical sciences in the UK and Ireland to explore the current climate for LGBT+ physical scientists. The survey was followed by a series of individual interviews. This report presents a summary of our findings and a number of actions for individuals, employers and professional bodies to improve the climate for LGBT+ physical scientists.

There were no significant differences in environment between the three subject areas represented, except where specifically stated in the analysis.

The data and analysis have allowed us to take a small step in understanding the types of issues that face our LGBT+ community. It is clear that we need to make more progress in ensuring we have inclusive working environments for all LGBT+ scientists.

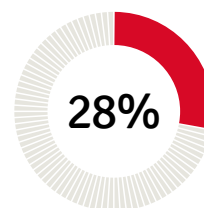
1. Doing the best for science means retaining LGBT+ scientists

28% of LGBT+ respondents stated that they had at some point considered leaving their workplace because of the climate or discrimination towards LGBT+ people.

Nearly half of all those who said they were trans had considered leaving their workplace because of the climate, with almost 20% of them considering this often.

To create an environment where the best scientists can flourish and the best science can be done, everyone needs to feel comfortable in the workplace. Our recommendations, in three key areas, will not just greatly benefit LGBT+ colleagues, but will ensure all staff and colleagues feel welcome.

Respondents stating they have considered leaving their workplace because of climate or discrimination towards LGBT+ people



LGBT+ respondents sometimes considered leaving



Trans respondents considered leaving often

“Ultimately, what any minority group-belonging person wants is, when push comes to shove, will my organisation support me?”

Interview participant, cisgender man, gay

2. A significant proportion of LGBT+ physical scientists had experienced or observed exclusionary behaviour

16% of all respondents had personally experienced harassment or other exclusionary behaviour and 30% of all respondents reported witnessing exclusionary behaviour. LGBT+ respondents experienced higher levels of exclusionary behaviour (18%) compared to non-LGBT+ respondents (10%). Trans and non-binary respondents experienced the highest level of exclusionary behaviour.

Those working in chemistry reported more instances of exclusionary behaviour than those in physics and astronomy.

3. Implementation of workplace policies and practices is uneven

While the majority of respondents (60%) thought that their organisation's policies and procedures were supportive or very supportive of LGBT+ staff, 17% felt that they were generally lacking or even discriminatory.

Men were more likely to report that policies were supportive, with women slightly less so and non-binary and trans individuals even less so.

Those who described themselves as out to everyone felt their organisations' policies were more supportive compared to those who were not out at all.

4. Workplaces with visible LGBT+ physical scientists were felt to be more comfortable

Those who described themselves as out to everyone were much more likely to report a comfortable working climate. The culture of science is one that has long been considered to lean away from overlap with someone's personal life and for LGBT+ scientists this can make it difficult to find occasions to come out or to find other LGBT+ scientists in their workplaces.

Unlike many other aspects of diversity, LGBT+ identity is often hidden, and not necessarily obvious to others in the workplace. This means visibility has great importance. While visible identifiers, such as the rainbow flag or lanyards, help to create a culture of inclusion, the day to day actions of individuals at every level, particularly senior figures, often gave cause for concern.

5. Scientists are in an international community and not all cultures are as inclusive

The international nature of science also caused particular concerns for LGBT+ scientists as it increases the likelihood of interacting with cultures that were not yet inclusive of LGBT+ people.

6. Networks bring LGBT+ scientists together, helping to alleviate isolation, exclusion and marginalisation

The existence of networks was an overall positive contributor to a supportive climate for LGBT+ scientists. Environments with a focus on higher education students were much more likely to have formal and/or informal networks in place.

40% of teachers and 40% of those who worked in a scientific role outside of a university were not aware of any networks.

Even where LGBT+ networks existed, there were attitudes of exclusion and hierarchies of specific LGBT+ characteristics.

Around a third of respondents said they were a member of a professional body and these networks were valuable to meeting the LGBT+ community's needs.

7. Despite progress, the current workplace climate experienced by LGBT+ physical scientists is uneven

The majority of all respondents (75%) reported that the working environment for LGBT+ physical scientists was comfortable and was improving (70%).

Men tended to respond more positively than women overall, who in turn were more positive than individuals who were non-binary. Respondents who identified as lesbian, queer or questioning were less comfortable, as were respondents who were trans. Overall, heterosexual respondents were more positive than those with any other sexual orientation in response to the majority of the climate questions.

Almost half of all respondents, (49%) agreed there was an overall lack of awareness of LGBT+ issues in the workplace.

Areas for increased action

Building a visibly welcoming community

Support for LGBT+ staff needs to be visible and not just in place on paper. Senior leaders and managers should proactively act as champions and advocates by speaking out about LGBT+ issues.

Everyone should be able to bring their whole selves to work. The key to this is creating safe spaces where people can speak about their lives outside work and get to know each other. Small daily actions can build up to create an atmosphere of hostility, and addressing this requires effort at all levels, from the individual to the organisation.

Guidance is needed on understanding and using inclusive language, including the use of pronouns.

Events, networks and conferences should be fully inclusive of LGBT+ scientists. Discrimination and harassment are disproportionately experienced by the LGBT+ community and this needs to be addressed in statements of professional practice and expected behaviour.

Reviewing and improving policies

All workplace policies and provision should be audited to ensure that LGBT+ staff are specifically protected. Policies addressing poor or difficult behaviour should be implemented to address discrimination and harassment of every kind, from the use of homophobic language in jest to the exclusion of subgroups from LGBT+ networks.

Ensuring that the international nature of science is reflected in these policies is essential and guidance should be shared to support LGBT+ scientists travelling abroad.

Managers should be trained on policies and implement them consistently.

Software systems with the flexibility for individuals who change names and genders should be considered.

Introducing and improving training

Training that supports LGBT+ staff could be used more effectively in nearly all work environments including training on transgender inclusion and correct pronoun usage, and bystander training.

LGBT+ staff groups should be consulted in the development of training, and be given the opportunity to participate in its delivery, to ensure relevance and increase visibility of LGBT+ staff.

Providing a non-judgemental space for difficult questions, and practical advice on how to use language and deal with difference is essential.

Management and senior leaders need to exemplify good practice, reinforcing messages from the training.

Training options should also be provided for managers at every level of the organisation to enable them to resolve difficult situations, to deal with differences in culture, and to ensure policies and practices that support LGBT+ staff.

1. Introduction

The Institute of Physics, Royal Astronomical Society and Royal Society of Chemistry have been working together since 2016 to create a network of support for members of the physical sciences community who identify as LGBT+ and their allies. We initially established a LGBT+ member-led steering group to oversee this work and they concluded that baseline data was needed to help inform our work in this area.

Using the American Physical Society (APS) LGBT climate surveyⁱ as a model, in February 2018 we disseminated an online survey, primarily through social media channels, to collect evidence of the working and studying climate for LGBT+ physical scientists in the UK and Ireland. The survey was open to members and non-members of professional organisations who identified as LGBT+ or allies, and who were working, teaching or studying in a physical sciences field, as well as those who had left a career in the physical sciences because they felt excluded due to their gender identity or sexual orientation. The respondents were primarily from physical sciences fields although a wide range of disciplines were also represented including biology, engineering and earth sciences.

While the majority of respondents were LGBT+ individuals, around 20% of respondents said they were non-LGBT+.

We followed up the survey results with 12 individual interviews with respondents who were happy to discuss their experiences in more detail. These interviewees were all from the physical sciences community and represented a wide range of sexual orientations and gender identities.

This report is a valuable snapshot of the current working conditions of LGBT+ physical scientists. Additional data provided by undergraduates gives scope for future analysis of the experiences of students.

Our overall findings may, on the face of it, seem positive - with 75% of respondents reporting they felt the climate was comfortable or very comfortable and almost 70% of respondents reporting that the climate for LGBT+ people was improving. However, those from the LGBT+ physical sciences community consistently felt less supported than their non-LGBT+ peers and experienced more discrimination and harassment.

Many respondents cited experiences of racism, classism, ageism, ableism, sexism, homophobia and transphobia in their wider workplaces, and even within support networks. These issues are, of course, not unique to the physical sciences, but we can take the lead in addressing them.

Strikingly, 25% of those who completed the questionnaire declined to answer questions about their own gender and sexual orientation. Even though the survey was specifically about these protected characteristics and even though respondents knew that the data would be anonymised, there is still a hesitation by many to provide this information.

Three overarching areas for increased action emerged from our findings:

- **Building a visibly welcoming community**
- **Reviewing and improving policies**
- **Introducing and improving training**

We have identified a number of actions under each area aimed at individuals, employers and professional bodies to encourage working together to provide an inclusive and supportive environment and address harassment and bullying.

The actions are demanding. For small companies faced with the potential of client push back or for higher education institutions feeling the pressure of government monitoring of academic freedom, it is all too easy to make decisions that undermine other efforts being made to support LGBT+ employees. Building a truly inclusive workplace is not going to be risk free.

We hope that this report will be widely read by those working in the physical sciences, those who employ physical scientists and those who represent physical scientists. It is relevant to people who are LGBT+, their colleagues and peers, and those who manage or employ LGBT+ people. It is an important step for us to build inclusive cultures. It is relevant to those who are aware of the issues faced by LGBT+ people, those who are not aware, and even those who do not recognise that LGBT+ scientists might be facing difficulties.

The actions this report recommends are for everyone; professional bodies, employers and individuals. Only through combined action will we see the vital change needed.

2. The current workplace climate

2.1 Despite progress, the environment is still uneven

Around 75% of the respondents currently working in the physical sciences agreed to feeling broadly comfortable in their working environment, as seen in **figure 1**.

There were no differences in the overall climate between the three subjects, astronomy, chemistry and physics, except where specifically stated.

Despite the majority feeling that the environment was comfortable, 49% of respondents agreed that there was a lack of awareness of LGBT+ issues from their co-workers (including both LGBT+ respondents and allies).

“ I feel like there is a lack of awareness of asexuality in communities at large and wish that could be explicitly included as an LGBTQ issue. Cisgender woman, asexual

Figure 1: Respondent perceptions of the climate in their working environments

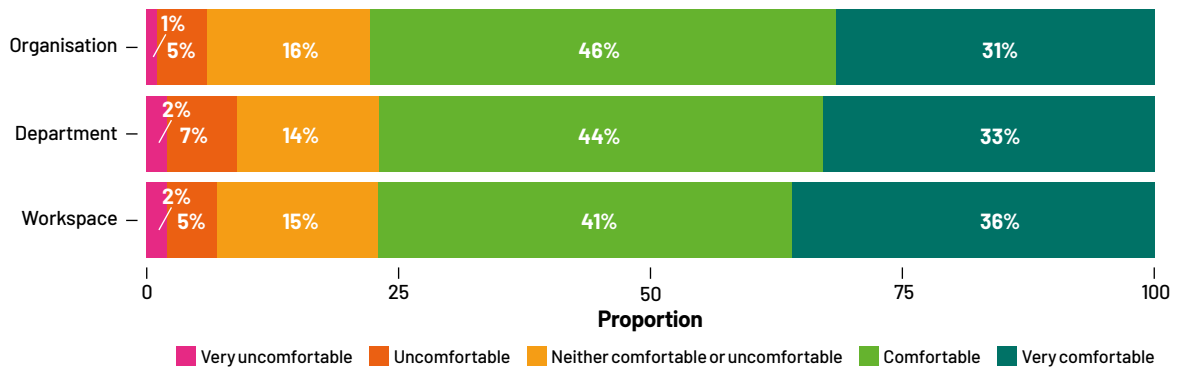


Figure 2: Respondent perceptions of how comfortable they are in their overall organisation environment by gender

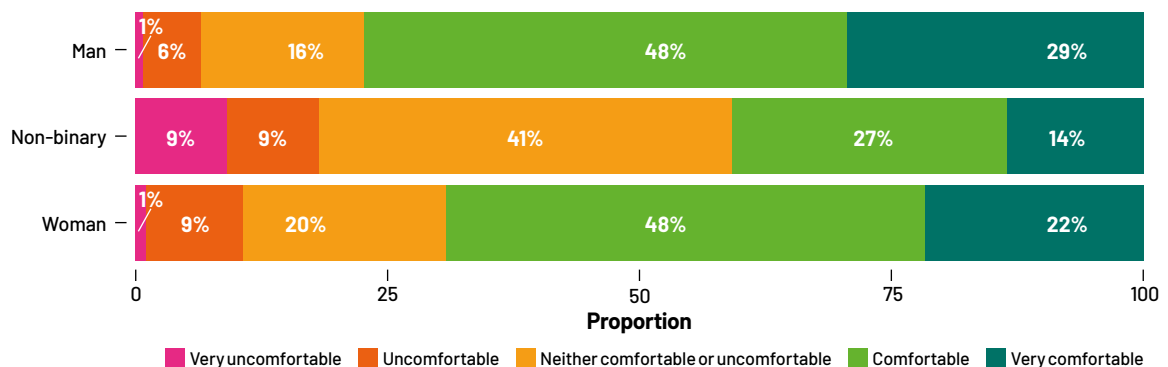


Figure 3: Respondent perceptions of the climate in their working environments

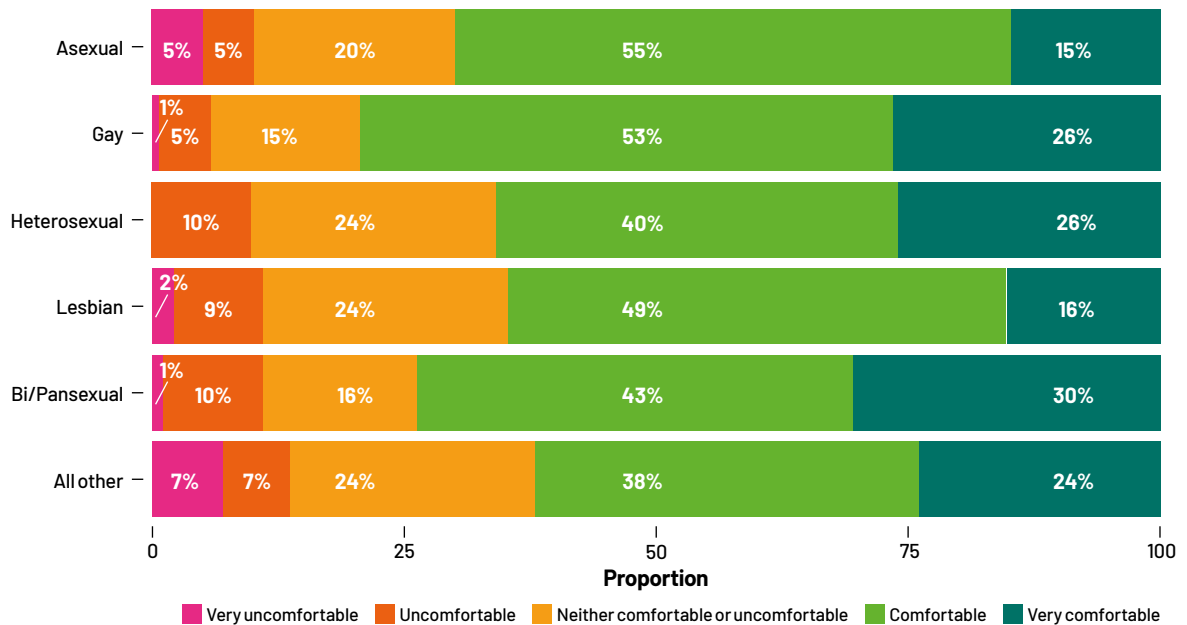
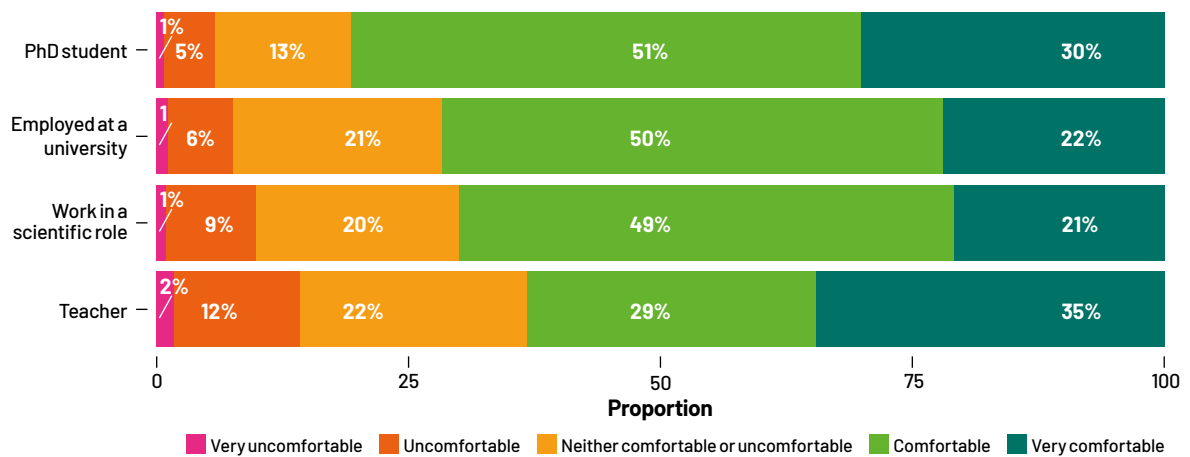


Figure 4: Respondent perceptions of the climate in their overall organisation, by job role



Women reported a less comfortable climate than men, and non-binary people reported a less comfortable environment than women (figure 2). This trend was reflected through all climate questions. Lesbians and those who were queer, questioning or not sure (included in the category ‘all other’) also reported less comfortable climates, as shown in figure 3.

In general, heterosexual people responded more positively than those with any other sexual orientation to the climate questions.

Differences in the working environment also show themselves once the data is analysed by job role, as seen in figure 4. Doctoral students felt the environment was more comfortable than those in other working environments and school teachers showed the most disparity, reporting both a more hostile and more supportive environment.

Those who were out to all co-workers were more likely to report that the climate was comfortable (83%) compared to those who were only out to some (76%) or not out at all (55%).

2.2 The nature of hostility in a supportive environment

A comfortable environment is a subjective concept but the issues that cause discomfort can have significant consequences.

16% of all respondents indicated that they had directly experienced exclusionary behaviour and 30% had witnessed such behaviour in the last 12 months.

LGBT+ respondents were more likely to report they had experienced exclusionary behaviour (18%) compared to non-LGBT+ (10%). Lesbians and those included in the category 'all other' (queer, questioning, not sure) reported higher levels of exclusionary behaviour than other LGBT+ groups (figure 5).

Those working in chemistry were more likely to have experienced exclusionary behaviour than those working in physics or astronomy (figure 6).

Women experienced more exclusionary behaviour than men and non-binary respondents experienced significantly more exclusionary behaviour than women (figure 7). Transgender individuals also experienced significantly higher levels of exclusionary behaviour, compared to cisgender (figure 8).

7% of respondents agreed that LGBT+ people feared job loss due to their sexual orientation. Even more (12%) agreed that LGBT+ people feared job loss due to their gender identity which rose to 45% of non-binary people and those who were trans.

Figure 5: Proportion of respondents who experienced exclusionary, intimidating, offensive or harassing behaviour because of their gender identity or sexual identity in the last 12 months, by sexual orientation

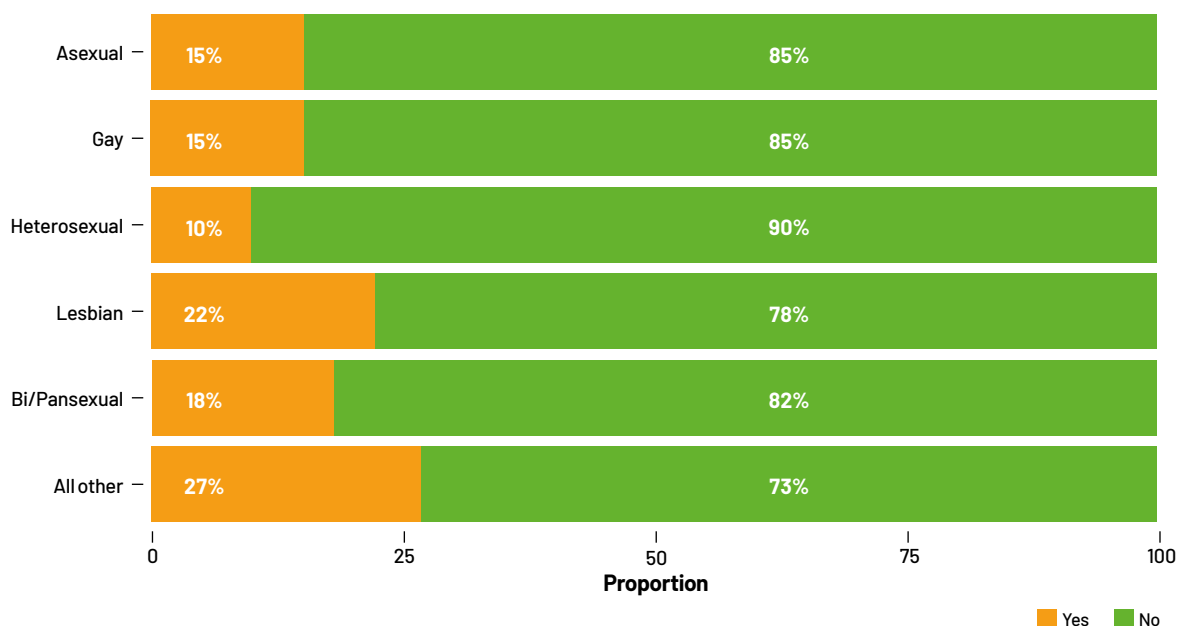


Figure 6: Proportion of respondents who experienced exclusionary, intimidating, offensive or harassing behaviour because of their gender identity or sexual identity in the last 12 months, by discipline

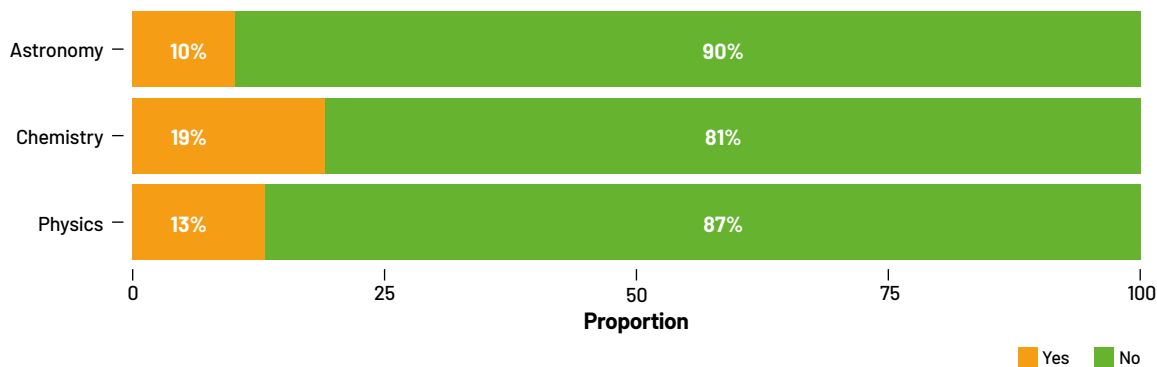


Figure 7: Proportion of respondents who experienced exclusionary, intimidating, offensive or harassing behaviour because of their gender identity or sexual identity in the last 12 months, by gender

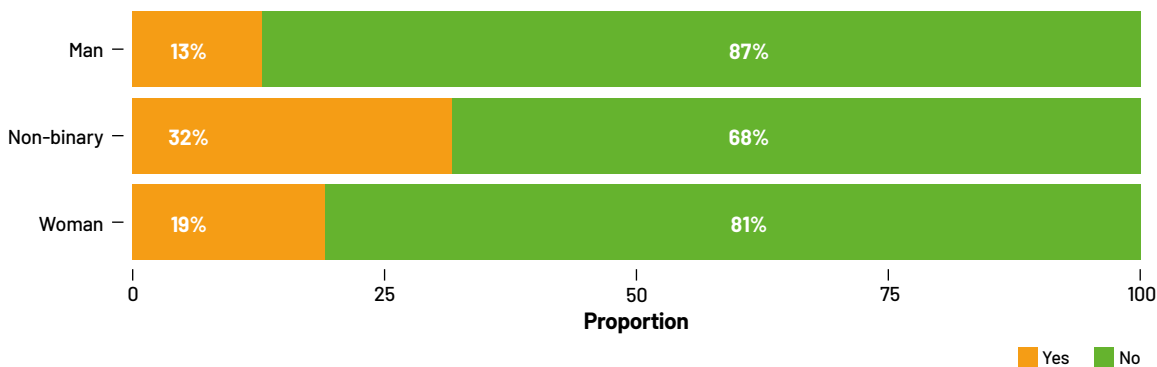
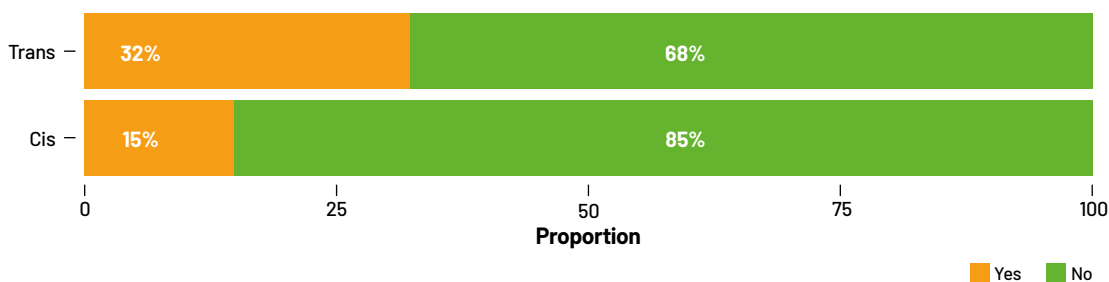


Figure 8: Proportion of respondents who experienced exclusionary, intimidating, offensive or harassing behaviour because of their gender identity or sexual identity in the last 12 months, by trans status



The current workplace climate

Exploring the workplace for LGBT+ physical scientists

Trans people overall reported a much stronger feeling than other groups that policies were not inclusive of their needs, that their co-workers were not able to have considered conversations about trans issues, and that simple indicators of respect, such as using the correct pronouns, were not used.

“ It is deliberate that I don't tell people about my trans history at work. I don't want to change the way they act towards me because some people, even if they're not actually hostile, they will treat you differently if they know that, for instance, you used to be a woman. It does change some people's approach.

Transgender man, gay

There are several factors that could explain why the levels of discomfort are so different. Some of the interview participants indicated that there might be a cumulative effect of negative behaviours when an individual is a member of multiple marginalised groups. Others suggested that while the world might be getting more accustomed to supporting gay men or women, for other groups the support is not yet there.

“ I think discrimination is additive. Lesbians experience more discrimination because they have the discrimination as women plus the discrimination as a sexual minority.

Cisgender man, gay

“ If it's got a gay man in it, everything's fine, but then of course you're underexposing trans individuals and gay women and certainly bisexuals... The more exposure there is, the easier it will become.

Cisgender man, gay

Interview participants described the idea that the LGBT+ characteristics of some people were more easily identified. Some respondents thought that discriminatory behaviour might be more common for those who were easily identified as LGBT+. Others indicated that the hidden nature of some LGBT+ characteristics was also a problem, causing those LGBT+ people to have to proactively explain themselves before getting the support they need.

There was no significant difference in the experience of respondents with disabilities, or those who were BAME. Moreover, when asked which direction they felt the climate was moving, 70% of respondents agreed that the climate for LGBT+ people in the physical sciences was improving, and less than 10% disagreed.

Respondents more established in their careers were the most convinced that significant progress had been made, even if more needs to be done.

“ I would say that over my career, in general LGBT and gender awareness and blindness to it, i.e. job capability relevant to doing the job rather than personal criteria, has improved in the past 30 years.

Cisgender woman, bisexual

Despite having reported an overall comfortable and LGBT+ supportive environment, 15% of respondents felt that LGBT+ people were expected to be secretive, with 23% of teachers reporting this. Likewise, almost 20% felt that LGBT+ people were pressured to not come out with higher proportions of teachers again reporting this (28%).

“ I don’t feel oppressed, but I also don’t feel encouraged to come out; a lot of assumptions are made about me and my partner (closeted trans male) that make me uncomfortable, and it’s hard to distinguish how much of that is my own fault vs. not feeling comfortable telling people.

Cisgender man, bisexual

What feels like a hostile environment to one person is not always obvious to those around them. Feelings of discomfort are not necessarily the result of overt negativity, and are easy to internalise. Some of the actions that cause them might be imperceptible, or easily ignored. Throughout the interviews, participants came back to the idea of “death by a thousand cuts” repeatedly, talking about how “harmful humour” was often a norm in their workplaces. Laddish culture and “blokey” environments were also a recurring theme, with respondents indicating discomfort in the way personal conversations were handled in such situations, and at the sorts of language used.

“ Generally the staff and students are a fairly enlightened bunch - nothing usually much worse than the odd off-colour joke.

Cisgender man, gay

“ I think that most of it is people making jokes about it all. You know, there is a kind of hurtful humour, I suppose, aspect of it.

Transgender non-binary, bisexual

One interview participant described how this sort of humour, even when it is not about her, or even LGBT+ issues directly, made her feel like she was working within a bigoted culture. In this way LGBT+ issues are part of a wider set of workplace problems – bigotry of any kind can have a knock-on effect for LGBT+ scientists’ wellbeing.

Participants felt these issues arose because of lack of thought on their colleagues’ part, rather than outright maliciousness, but the damage is the same.

There are many different ways in which individuals might contribute to a hostile environment. Interview participants described some typical interactions, and their consequences – a common example being the derogatory use of the word gay.

“ If anyone uses ‘gay’ as a derogatory term, that really stings because, ultimately, that’s not something that you can or want to change about yourself. You feel a bit lost.

Cisgender woman, lesbian

The current workplace climate

Exploring the workplace for LGBT+ physical scientists

Whether harmful comments are intentional or not, one key matter is the support someone receives when dealing with them. For large organisations this is a particular problem, as staff at different levels might be treated differently when it comes to the behaviours they exhibit or the training and support they get. Whilst there might be schemes in place to promote inclusive behaviours to some staff, this might not extend to those working in other areas of the organisation.

“ The trans colleague I was supporting was having a bit of difficulty with the cafeteria staff, who... were being thoughtless rather than being prejudiced. I was a bit shocked that twelve months on, the cafeteria staff... were mis-gendering her... Obviously, that upset her quite a lot, but at the same time, she was almost philosophical about it and almost wasn't blaming them. She just needed someone to talk to, and then she would challenge them.

[The staff] have not had a reason in their lives to have that conversation about it and to think about it and understand that.

Cisgender man, heterosexual

“ I've seen cases of overtly racist comments or misogynistic comments at university. Not in front of the person, not to the person themselves and coming actually from places of seniority. It made it very difficult to call them out. When your boss is actually making a comment and you think like, "I'm not going to even—". You just end up sometimes saying nothing because it comes from a position of authority and it's very difficult to know how to react to that, especially with some personalities.

Cisgender man, gay

We know that any survey represents only a snapshot in time, and that the climate is constantly changing. For trans people the situation is particularly changeable, and is starting from a point of high discrimination. Stonewallⁱⁱⁱ reported that during 2017 two in five trans people (41 per cent) and three in ten non-binary people (31 per cent) had experienced discriminatory behaviour because of their gender identity.

“ People are willing to say stuff about being LGBT and at the moment, trans in particular, that they wouldn't say about race, that they wouldn't say about people with disabilities. It's very interesting at the moment that it's acceptable to speak out against trans people, less so for LGB people, although it's still there. I still see it. It's clear that whilst progress has been made, it does not yet feel fully embedded into our working environments, and that it does not take much to allow things to start moving backwards.

Transgender woman, pansexual

There is also a particular issue for universities, where there are people with wildly different cultural upbringings and perspectives, not all of which are inclusive of LGBT+ people, or of other races, genders or social classes. Under these conditions many behaviours emerge that whilst not necessarily malicious, can cause considerable harm.

“ The academic and administrative staff are wonderful and supportive. But more needs to be done to show students that exclusionary and derogatory conversation is not okay. I've been put off academia as a career because of how laddish my classmates are now.

Cisgender woman, questioning

Yet, there are advantages to the university environment. A large student body increases the visibility of LGBT+ issues, and makes it more likely that there will be support networks – both formal and informal.

2.3 Actions are at the core of a supportive environment

When asked about their employers, 60% of respondents thought that their organisation's policies and procedures were supportive or very supportive of LGBT+ people, but 17% felt that they were generally lacking or even discriminatory. Men were most likely to report that policies were supportive, with women being slightly less so and non-binary people even less (figure 9).

Likewise, those who described themselves as being out to everyone felt their organisations' policies were supportive (68%) compared to those who were not out at all (52%) (figure 10).

Changes in legislation have meant that increasingly employers have policies and training in place to support inclusivity and diversity in the workplace, including those that are supportive of LGBT+ people's needs.

However, the word policy is used to cover a multitude of different types of agreement, both formal and informal, something that can create problems when trying to roll out an action. When initiatives are called policies but treated more as guidelines, it can be difficult to know whether enforcement is possible or necessary.

Figure 9: Respondent perceptions of how supportive institutional policies are to LGBT+ people, by gender

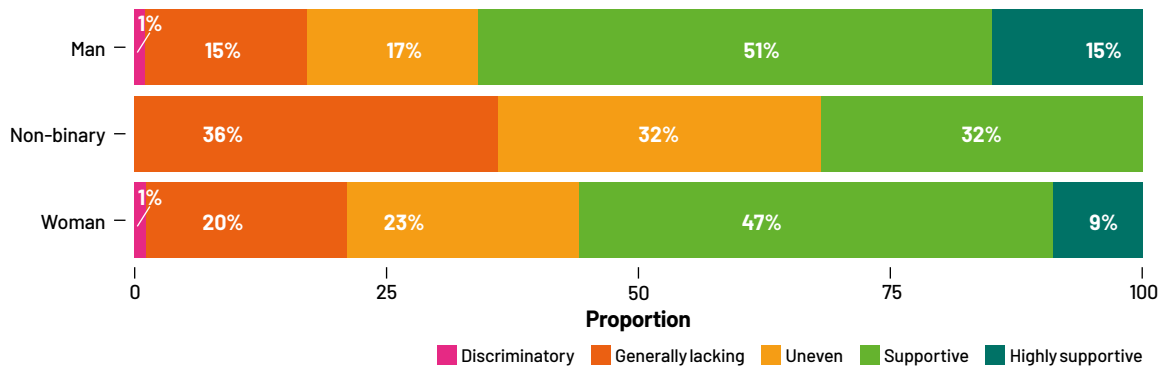
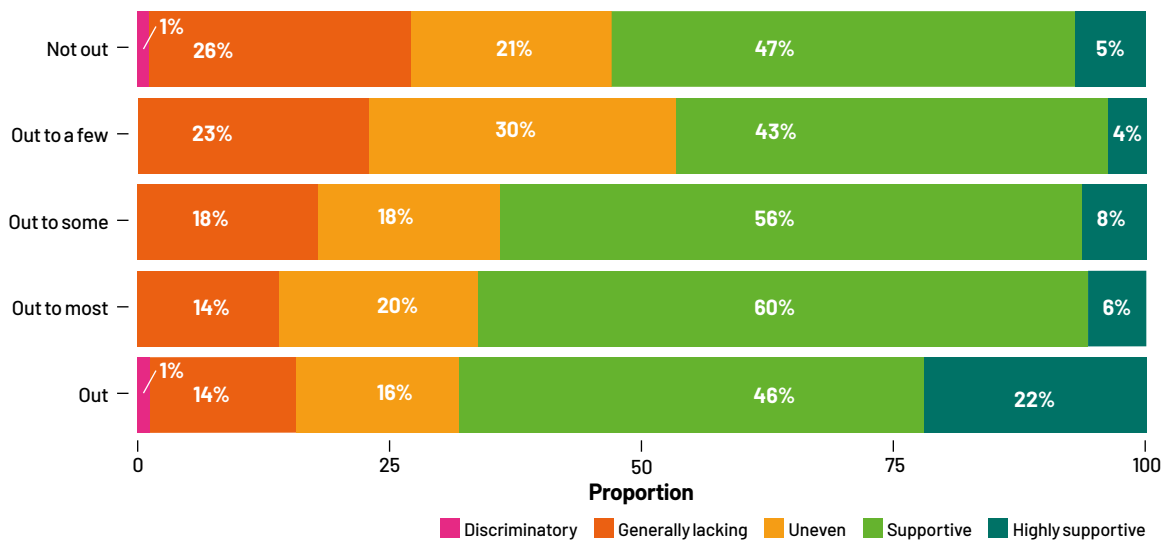


Figure 10: Respondent perceptions of how supportive institutional policies are to LGBT+ people, by whether they were out to their co-workers as being LGBT+



“ It always comes in the difference between addressing LGB issues and including the T, I think. I’ve tried to push that people include their pronouns on their email signatures... but it’s becoming quite difficult to make that university legislation. Partly because, and quite rightly probably, it was brought up about how you would police that, I guess. If somebody had their pronouns on their email signature but was mis-gendered repeatedly by accident or on purpose, how the university would deal with that? How many slaps on the wrist would somebody get and how severe would the punishment be if it was persistent? That’s the point at which that initiative has stopped at the moment. I’m not so sure how the university should deal with that.

Cisgender woman, lesbian

Some respondents were able to describe policies that were specifically targeted to support LGBT+ people, while others felt that most of the references to LGBT+ people in their local policies were nothing more than lip-service.

“ The minimum signalling is to have some kind of policy that includes LGBT in the statement. The more detailed the policy is the more credible it is and the more supportive it is for people.

Cisgender man, gay

Implementation was a recurring theme throughout the responses. Whatever policies say, how they are followed is of equal, if not greater, importance.

The current workplace climate

Exploring the workplace for LGBT+ physical scientists

“ My feeling is there’s nothing to lose by getting involved. Always be ready to apologize if you say something wrong or you do something wrong. I’m white, I’m male, I’m straight, I’m becoming grey-haired now. I’ve got all those signifiers of privilege. I’ve recognized that the best thing I can do is use that to change things so that those bits of privilege matter less in the future... look for where you’re privileged and make use of that to help make things more inclusive and more equal.

Cisgender man, heterosexual

Respondents spoke positively of the good practice they saw their workplaces adopting to address bias against LGBT+ people, which included correct gender pronoun training, gender-neutral toilets, regular news stories, equality and diversity committees specifically including LGBT+ issues and visibility of pride flags.

Unconscious bias training was mentioned frequently, but with mixed feelings. For some, the rise in offering this training was nothing more than a token effort. For others, the unconscious bias approach was not practical enough, and focussed more on excusing people for their actions that helping them to develop more supportive behaviours.

“ I had a hard time as a manager, promoting a great lesbian scientist. Was that because she was lesbian? Female? Quiet? Not aggressive? Not sure. Just know that her pay was lower than other male group members, and there were often more questions about her regarding promotions or merit raises. My documentation for her promotions took 3 years to develop and had to be meticulous. The burden of proof was higher.

Cisgender woman, heterosexual

Issues of inclusion in policies are particularly apparent for trans people. Aside from being included properly in the day-to-day working processes and spaces of an organisation, they also have specific needs when it comes to transitioning, including time away from work, healthcare funding and guarantees about the way they are treated throughout the process.

“ I suppose if there were more people who had transitioned that would probably help and then also maybe some specific policies about people who want to transition, because I don’t think there’s any, I’ve never seen any specific policies about staff who wanted to transition. I think that would definitely make me feel like it actually would not be like a huge problem if I did it, if there’s actually policies there about it.

Transgender non-binary, bisexual

Transgender respondents reported significant numbers of instances where their correct pronouns were not used. They also had difficulties with deadnaming, and the continued use of their pre-transition name within organisational processes and software. In a scientific environment this has particular consequences; publication records, as well as impact and financial income reporting cannot be accurately allocated if the software and systems used to track this are not able to account for a change of name or gender.

“ At the university admin level the inclusion of LGBT+ students (particularly when there is a gender transition) can be problematic at times. For instance, our online system cannot log a change in name from any official documentation - and that often means using the deadname for transgender students. Also, our online system does not log in any of these issues so, in email exchanges or when there is no face-to-face communication, it is easy to make mistakes in these instances.

Cisgender man, heterosexual

No matter what policies are in place, ultimately people's behaviour is at the core of how supportive an environment feels. Senior staff and line managers have an important role to play in setting examples, and leading through good practice. No policy, no matter how thorough, can cover every aspect of respecting co-workers, but in the absence of supportive policies, sometimes individual practice can still shine through.

“ When I was hired, my line manager asked me about my preferred pronouns. Since I was very open about being transgender, he did what he could to ensure that the rest of my department and other co-workers also knew about my pronouns. People often still use the wrong pronouns, but sometimes they get it right, and that is probably thanks to my line manager.

Trans feminine, non-binary, queer

3. Relevant issues for the physical sciences

3.1 Life outside of work

The ability to be out and talk about their personal lives in their workplace will inevitably affect the wellbeing of LGBT+ staff. **Figure 11** shows responses to the question of how comfortable the work climate is, differentiated by whether the respondents considered themselves to be out or not. Those who described themselves as out were much more likely to report a comfortable working climate.

Just 9% of non-binary individuals were out to everyone at work, compared to 31% of women and 44% of men. Only 14% of bi/pansexuals and 21% of queer/questioning individuals were out at all, compared to 38% of lesbians and 44% of those who said they were gay. 30% of trans individuals were out to all, compared to 38% of cis individuals although 16% of both of these groups were not out at all.

A common theme within the responses was the importance of conversation and casual interaction in creating a space within which an LGBT+ scientist could come out to their co-workers. Sometimes these opportunities to get to know one another don't happen at all.

“ The funny thing is that I have a colleague, who had sat at the desk next to me for many years. I think for the first two years that we chatted, both quiet, reserved sort of people, we didn't talk a lot about our private lives. I think if we did mention our partners, we each just said, “My partner” without specifying a name or referring to them as he or she. Both of us did that. I think after a couple of years, I just couldn't be bothered to conceal it. I mentioned my partner's name (I think he was ill at the time) and I said, “I'm not going to be around the next couple of weeks because my husband's ill.” After that, my colleague also began mentioning that his partner was also male. We'd both been in the same situation, but neither of us had wanted to make it explicit for a couple of years.

Transgender man, gay

LGBT+ individuals out to everyone at work

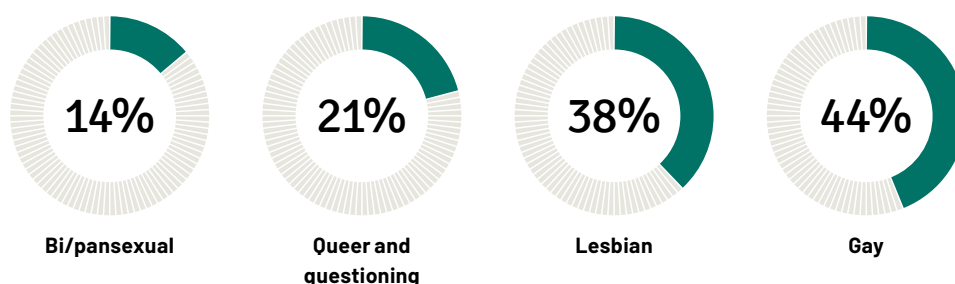
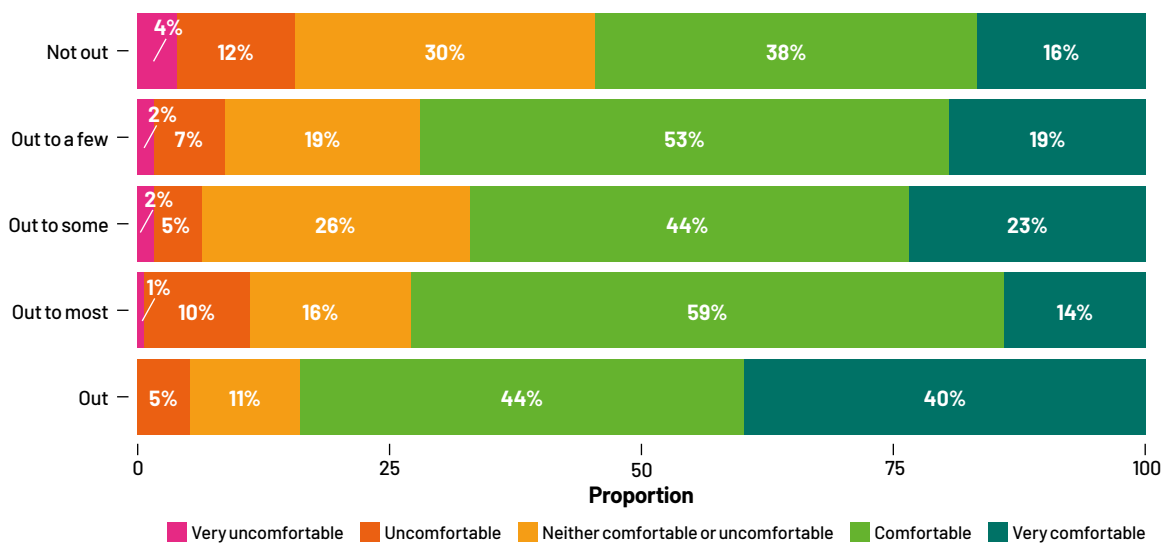


Figure 11: Respondent perceptions of the climate in their workplace, by whether they were out to their co-workers as being LGBT+



Some respondents felt that the physical sciences provided a working environment where discussions of personal lives or interests outside of work could be negative to the workplace. Some extended this reasoning to undermine the initiatives that aim to support LGBT+ colleagues.

“ Although I do not believe there would be any particular backlash I tend to keep my personal life and orientations away from the workplace as I don’t feel that it is relevant to work in any way, and if I were to bring it up it would likely not bring anything positive to my workplace environment.

Cisgender man, pansexual

“ University is meant to be a professional working environment. So, as to why this questionnaire is asking such childish questions is beyond me. Outside of the physics department, in more a social setting, this would be fine. But inside the department we are all just scientists, regardless of gender or sexual orientation, etc.

Cisgender man, heterosexual

When casual interactions are not available, then the sorts of conversation where someone might naturally mention details about their partner or past, or discover that someone is not homo- or trans-phobic, do not come up as often. Some respondents found this a positive environment, while others found it restrictive.

Relevant issues for the physical sciences

Exploring the workplace for LGBT+ physical scientists

“ I’m not out to anybody. I’m single, and have never had a relationship, pretty lonely to be honest. Most of my colleagues, gay or straight seem to be fairly happy. There is a staff LGBT network here but I’m too scared to go along to any events. I probably have devoted too much of my life to research and my career. My parents probably expect grandchildren someday but I’ve always been the busy, high-achieving scientist. In this way, the climate of STEM is actually a useful shield for not-out people like me. I can distract and immerse myself in my work and stay on my own.

Cisgender man, gay

“ My workplace is not really a place where colleagues discuss their personal lives much (if they have them!). I am still closeted, not out of need but because it’s never come up. As such, my queerness remains ‘invisible’ - I can’t talk much about LGBT+ experiences but perhaps the fact that I can’t is itself telling.

Cisgender man/questioning, asexual

According to the respondents and interviewees, a comfortable environment also often included other people being visibly out already.

“ Then I went to work for a Blue Chip, 7000 employee, corporate and was promoted to middle manager. I went rapidly back into the closet because it was such a competitive... everybody was ready to stab the next person in the back at any sign of weakness. I absolutely kept it in.

Cisgender man, bisexual

“ It’s actually a very inclusive place to work. I’ve never felt uncomfortable with who I am there...

The group there, it’s quite a big group of 60-odd people... It’s quite a diverse spread. In physics you usually get a lot of mostly men but there’s a good few women there, and there’s a couple of gay men and women there. Everyone’s very, very welcoming towards whoever you are.

Cisgender man, gay

“ Significant number of ‘out’ staff has encouraged students to also be out and comfortable in the department.

Cisgender man, gay

Visibility of being out is one way of indicating a supportive environment. But for many being out is a complicated issue. Someone who is bi and currently in a heterosexual relationship might appear to be straight. Someone who transitioned over a decade ago might pass as cisgender. In both cases there would be pros and cons to coming out. For many bi people, knowing when and how to come out is particularly problematic.

“ I am a bisexual woman in a relationship with a heterosexual man, because of this, many people assume I am straight, including queer people. It feels very awkward to correct unspoken assumptions or to bring up my queerness. I think a lot of people assume I am just an enthusiastic ally, rather than a part of the community itself. I have no problem bringing my partner to work events but I feel my identity is invisible, isolated & erased. I feel out of place at LGBT events, even though that’s where I want to feel at home the most, especially if I bring my partner.

Cisgender woman, bisexual

The final issue raised, with respect to coming out, was to challenge the idea that coming out might somehow be a one-time action; that someone was only either ‘out’, or ‘not out’. Instead, being out was described as more of a spectrum in time and space for most people; more out to some co-workers than others, more out in some situations than others. As one participant put it, “I feel like you have to come out constantly all the time.” Coming out is something you have to do every time you meet someone new, or every time you begin to share personal details with someone.

“ I don’t know if it’s me, but I always feel like people think that you’re oversharing potentially, that you’re giving them quite a lot of information about yourself. Whereas if I was straight no one would blink with it. I think there is that thing where, when you give that piece of information, people always have some kind of reaction. Usually, it’s nothing, but they will always – I don’t know. You feel there’s always a bit of readjustment going on.

Cisgender woman, lesbian

The visibility of LGBT+ staff and supportive initiatives send strong signals of an inclusive environment. Survey participants also looked to social media, websites, print media and word of mouth to seek these indicators of support when judging how viable a workplace might be for them. Social media, particularly, has allowed LGBT+ scientists to make themselves visible to an unprecedented extent, both actively contributing to a positive climate for other LGBT+ scientists and helping to champion the issues they face. Some good examples of LGBT+ scientist networks include: 500 Queer Scientists ⁱⁱⁱ, LGBT STEM ^{iv}, LGBT Physics ^v and Pride in STEM ^{vi}. Initiatives like the ‘Real Scientists’ rotating twitter account also help to present scientists as whole people, showing how their work intersects with their daily lives and what it is like to be an LGBT+ scientist.

Relevant issues for the physical sciences

Exploring the workplace for LGBT+ physical scientists

For the main part, positive LGBT+ messaging on websites was seen as a good thing, but respondents pointed out that for some larger organisations, putting information on a website can be done easily and can seem like a token gesture. For new or small enterprises, face-to-face conversations or more personal social media interactions might better serve this function instead. For some, the visible presence of individuals at LGBT+ supportive events was much more important than a formal presence on their company website.

Committee members, dedicated champions and role models, and openly out colleagues were all considered invaluable. However, respondents felt it was important that role models and champions were not used as a quick fix for diversity problems. The burden can be too much or misplaced if staff with diverse characteristics are simply asked to take on additional work in order to solve inclusion issues. For some this kind of approach is simply uncomfortable.

“ For me, it was like, “Right. You want the women to fix the problem that’s affecting women on your behalf.” It just felt like “Here’s another job we need you to do,” rather than thinking, “Hang on a second. How can we change the men?” It goes for any sort of minority group.

Cisgender woman, bisexual

“ My institution is very supportive of gay colleagues, and the policies are in place for trans people, but asexuality is never considered. I’m pressured to be a female role model and was forced to participate in Athena Swan, but no-one considered that I’m not comfortable with this and I didn’t feel able to say.

Cisgender woman, asexual

Higher education institutions in particular are faced with a significant problematic issue; that of academic freedom. For some institutions, a desire to be seen to be supporting academic freedom is at odds with their desire to create inclusive workplaces. One interview participant described a working environment that is supportive of her and other trans colleagues but that has hired senior academics who are publicly adamant that trans women should not have the same rights as other women.

“ It’s a difficult thing with universities. They’ve been told to allow free speech, allow academic speech, by the government, but unfortunately, that sometimes has a counter effect. Free speech should have limits, we can’t just allow it generally. It is interesting that one day they’ll have me on [a platform], but then the next day they’ll have someone else who I know doesn’t think I should be allowed to use the bathroom with them, things like that.

Transgender woman, pansexual

The speakers in question are denouncing trans women on social media and personal blogs, rather than in the workplace. But there is an important conversation to be had within scientific organisations about the messages that are sent out when behaviour that negatively impacts on others in the workplace is not addressed.

Respondents welcomed visibility schemes, such as rainbow lanyards, stickers or pins for all staff to wear or display in support of LGBT+ colleagues. They also valued both internal and external networks for LGBT+ people, formal and informal. The annual LGBT+ STEMinar^{viii} was particularly welcomed.

The inclusion of the rainbow flag, or some other LGBT+ identifying detail, within slides for lectures, seminars and conferences was also welcomed, although it was acknowledged that on some occasions, such as while working overseas, this might not be safe to do.

The survey responses suggested that reactions to LGBT+ disclosure are often still extreme, particularly when working internationally. Worrying about these reactions, and how to come out is wearying for LGBT+ scientists. Within the workplace, they have to find a way to excel, despite these additional concerns.

3.2 Scientists are in an international community

Questionnaire respondents from both academia and industry stated that working with people from cultures that are less accepting of LGBT+ people brings particular issues. For some these are colleagues and students within their workplaces, for others it is clients outside of their own company or institution. How this plays out for each individual is very context driven, with varying consequences.

“ My work causes me to frequently meet many new people and occasionally travel to places where I feel less safe being open about my gender identity. This means there are many work scenarios where I don’t feel particularly comfortable being ‘out’ (and therefore don’t feel particularly comfortable generally). This has at times taken a toll on my mental health and sometimes my performance at work suffers as a consequence.

Non-binary, pansexual

For some being open about their LGBT+ status causes small discomfort, while others risk losing clients and work, that could have significant consequences for the rest of their career.

“ She didn’t seem to mind that I was gay but she was completely appalled that I would raise it. She said, “What, you just come out and tell people like that?” I said, “Well, yes, I try to.” I had deliberately selected her as being, I thought, probably the person who would be less likely to take it badly if anybody was going to.

Cisgender man, gay

“ I’m quite senior and I’m the most senior out gay person in my field. I know that my firm would support me even if there was an adverse consequence. A lot of people don’t feel that and most people are not out to clients in general. Most of them, and especially most of the more junior ones, feel that if the conversation doesn’t go positively, there are financial consequences for your employer, and your employer might not thank you for that.

Cisgender man, gay

Such consequences are not limited to industry. An academic interview participant described his work teaching in China as putting him “in limbo”, because whilst being gay wasn’t illegal there, it was still considered shocking. Being “out” with colleagues would have created negative perceptions of his work.

“ There’s an expected responsibility on individuals to make sure that collaborations will be protected, placing LGBTI academics in situations in which we feel we have to return to the closet for the sake of the collaboration. Institutions should be way more assertive stating to international collaborators that our communities are diverse, and “that’s that” and not leave it to individuals to navigate their identity through on their own with regards to international collaborators.

Cisgender man, gay

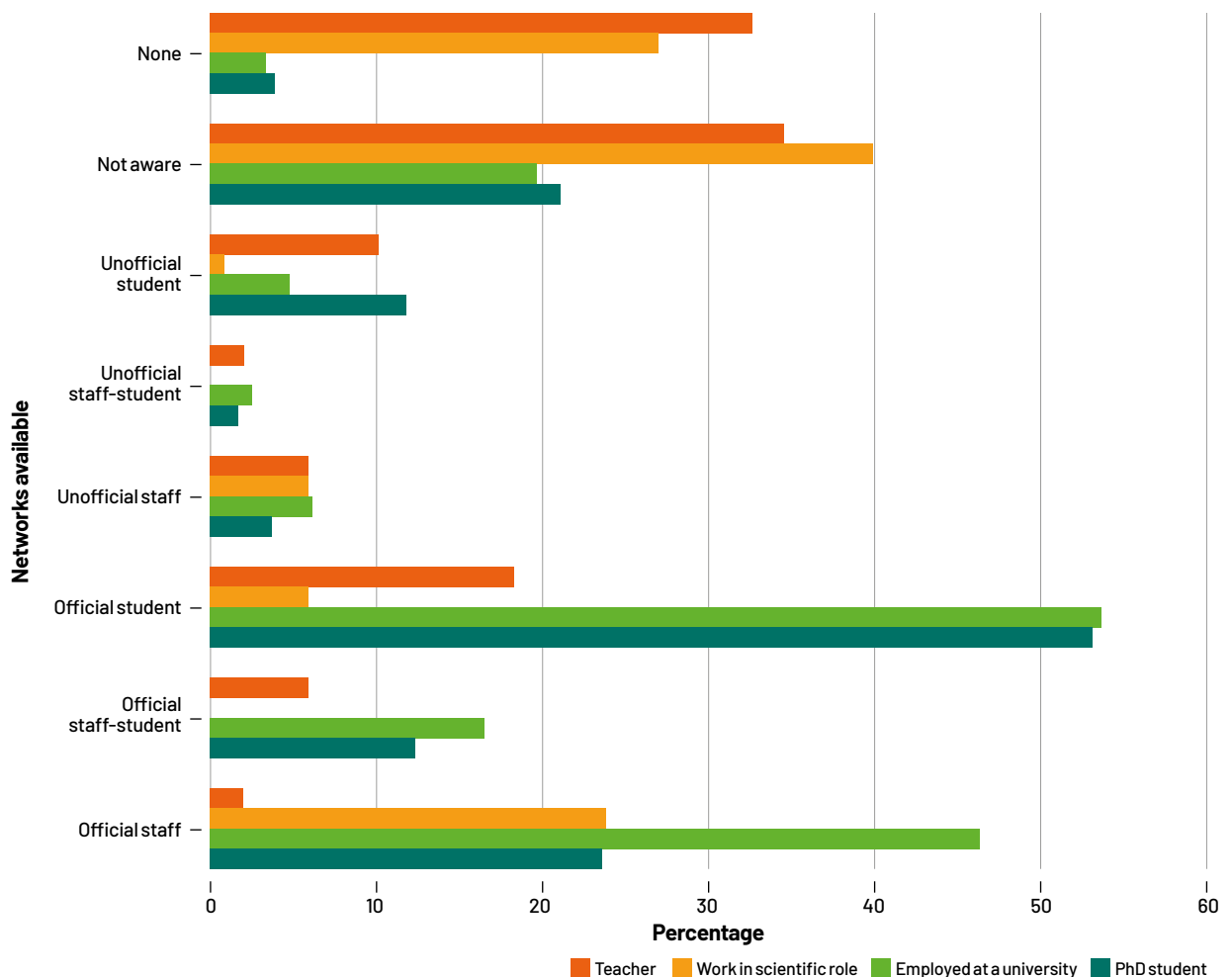
International contact is by no means all bad – one interview participant spent several years working in Sweden where “they accepted anybody and everybody and it was a great environment to work”. Nevertheless, not all experiences can be this good, and if LGBT+ scientists are to feel safe and supported in their international work then they need clear policies from their employers as to how their rights and safety will be assured.

3.3 Networks bring LGBT+ Scientists together

A key action identified by respondents was having LGBT+ networks for staff or students. We asked respondents what sorts of networks they had available in their institutions, and the results were varied, as shown in **figure 12**.

Environments with a focus on students were much more likely to have formal and/or informal networks in place, with student networks contributing significantly to the responses for teachers, doctoral students and other university employees.

Figure 12: LGBT+ networks available to respondents within their workplace, by job type



Despite this, teachers were much less likely to have networks available to them, with less than 40% of respondents aware of networks of any kind. The other scientific employers were also lacking in this respect, again with less than 40% aware of any network at all, but the networks that were present were often formally recognised by their employer.

The existence of networks was an overall positive and a significant contributor to a supportive climate for LGBT+ scientists but even the different attitudes within LGBT+ networks raised issues. Respondents felt that within LGBT+ networks there were still prevailing attitudes of exclusion, and described hierarchies of specific LGBT+ characteristics, with examples including negativity towards cisgender white men, exclusion due to gender of every type, and exclusion due to being a sexuality other than gay all causing problems in different ways.

3.4 Doing the best for science

28% of LGBT+ respondents stated that they had at some point considered leaving their workplace because of the climate or discrimination towards LGBT+ people, compared to 16% of non-LGBT+ respondents. The most concerning viewpoint is that of trans people, nearly half of whom had considered leaving their workplace because of the climate, with almost 20% of them considering this often.

“ Rainbow lanyards really help promote a climate of openness and acceptance – they need to be accompanied by appropriate training, though. I know trans/nonbinary students who would not feel comfortable seeking help from rainbow lanyard-wearing members of staff, since they fear that members of staff may only be aware of gay/lesbian issues and lack awareness (or react inappropriately) when confronted with trans issues.

Transgender non-binary, pansexual

Workplaces are often competitive environments and science, as a sector, is closely monitored for financial performance and impact. More than ever, we need a workforce that is free to perform at its very best. The journal Nature has published the results of studies around the world that repeatedly show that diversity is good for science, including a recent study that shows that a team that represents multiple gender identities can demonstrate increased innovation.^{ix}

It is one thing to advocate for diverse workplaces, and another to create a climate that supports them. Survey responses gave multiple examples of LGBT+ scientists leaving workplaces, or leaving science completely, in order to feel more comfortable. This is not good for science.

“ I was in an environment where I wasn't able to openly transition, but I knew that for my own self I needed to transition. I started transitioning in secret and applying for degrees in other fields because I assumed I wouldn't be able to continue in my role. Which meant that I wasn't necessarily achieving the best I could when it comes to papers. I was doing a lot of cooperation work, I was doing a lot of experiments, but I wasn't writing up because I just assumed that I wasn't going to be able to continue in the field.

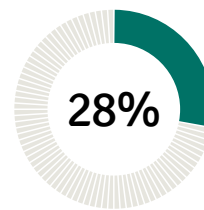
Transgender woman, pansexual

“ The problem as I see it is that, there’s a view of scientists – science is impartial and shouldn’t have politics. Therefore, scientists must be amorphous, faceless things without any identity or any politics or any this that or the other, and that’s not true. It’s the scientists who do the science and we do better science when we’re comfortable.

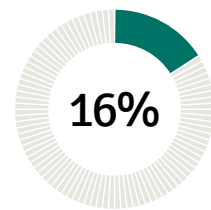
Cisgender man, gay

If we are to retain talent and allow scientists to thrive, they need to feel comfortable in the workplace, and this means acknowledging, and working with, the human side of science too.

Respondents stating they had at some point considered leaving their workplace



LGBT+ respondents



non-LGBT+ respondents

4. Areas for increased action

This report describes a complicated workplace environment for LGBT+ physical scientists, but the fact that the environment is felt overall to be supportive towards LGBT+ scientists should be celebrated. While we have made good progress as a sector over the last 10–15 years, there is still a lot more to do to create an environment where LGBT+ people can be fully themselves and the best science can be carried out.

This data and analysis has allowed us to take a small step in understanding the types of issues that face our LGBT+ community, but we need to continue to make progress.

The support felt by people from different gender and sexual identities varied significantly and this will inevitably impact on LGBT+ staff mental health and wellbeing. More needs to be done to ensure that all LGBT+ staff feel supported and comfortable. Extra steps will need to be taken to help groups at particular risk, such as non-binary and trans scientists, to access the same level of support and comfort as their cisgender heterosexual colleagues. This means paying attention to details in policies, processes and procurement, and encouraging forward and inclusive thinking on behalf of decision makers.

4.1 Building a visibly welcoming community

The visibility of support matters: rainbow lanyards, a pride flag in the foyer, mentioning LGBT+ initiatives and documenting the successes of LGBT+ champions in internal and external communication all go a long way towards helping LGBT+ staff feel welcome.

For many the culmination of good visibility was to have senior leaders and managers proactively acting as champions, whether LGBT+ or allies. A lack of senior roles held by openly out LGBT+ staff and an overall lack of obvious support from those in senior positions is noticeable. If decision makers are not effectively considering LGBT+ needs, then it seems unlikely that their policies and procedures will do so either.

Individuals form a vital part of the visibility of LGBT+ staff in scientific workplaces, and the visibility of allies. An inclusive environment is one where there are opportunities to come out and so efforts should be made to build spaces for conversations that make this as straightforward as possible for LGBT+ scientists. To maximise the inclusive effect it is important that these spaces are not limited to outside of work hours. Safe spaces to start informal conversations could help to bring down walls between LGBT+ staff and their colleagues.

The actions that most commonly contribute to a hostile environment for LGBT+ people are frequently small but numerous. Often it is smaller, day-to-day interactions that can. These actions might seem inconsequential to the antagonist and might be unintentional, but they leave lasting impact on LGBT+ employees. We need to audit workplace environments to address the small daily actions that can build up to create hostility.

“Only when all people feel comfortable to be themselves in the workplace, without any fear of discrimination, will global science truly be able to thrive. Even more importantly, only then will we stop wasting so much human capital.”

David Smith, RSC News, July 2018*

Individual	Employer	Learned Society
<ul style="list-style-type: none"> • Show visible support for the LGBT+ community by wearing rainbow lanyards and pins. • Be respectful to others particularly thinking of your use of language and always asking/using people’s correct pronouns. • Include your LGBT+ status and pronouns in your online presence/email signature and through blogs, social media. • Speak out about LGBT+ issues. • Familiarise yourself with some of the LGBT+ scientists working in your area, and suggest them as speakers or press contacts when the opportunity arises. • Be aware of the implications of mental health and wellbeing of LGBT+ staff if they are not working in a comfortable environment. • Recognise your own mental health and wellbeing. 	<ul style="list-style-type: none"> • Set clear behaviour expectations for all staff. • Collect and publicise data on LGBT+ staff and their experiences to improve policies, practices and procedures. • Encourage senior managers to speak openly and publicly about LGBT+ issues. • Be (active) members of LGBT+ organisations or charities and actively support LGBT+ events and networks, promoting these to staff and students. • Share expertise on facilitating the growth of LGBT+ networks. • Encourage all staff to include their pronouns in their email signature. • Ensure there are inclusive images and language on your webpages/recruitment sites. • Provide guidance on inclusive language, including the use of correct pronouns. • Introduce social spaces such as coffee mornings or lunches as a way for staff to have casual conversations. • Make available gender neutral toilets/changing rooms. • Recognise the implications for the mental health and wellbeing of LGBT+ staff if they are not working in a comfortable environment. 	<ul style="list-style-type: none"> • Repeat this survey every 3-5 years to collect and publicise data on the experiences of LGBT+ physical scientists. • Identify any particular areas in this report for follow-up research, e.g. teachers, undergraduates, or access to networks. • Encourage senior managers and leaders in the organisation and the community to speak openly and publicly about LGBT+ issues. • Actively support national LGBT+ conferences, events and networks, promoting these to staff and members. • Promote LGBT+ issues in member recruitment literature and in member news pieces to reflect the diversity of the physical sciences community. • Ensure there are inclusive images and language on webpages/ recruitment sites, demystifying sex/gender terms. • Promote guidance on running inclusive events for LGBT+ people including the use of inclusive language at events, gender-neutral toilets • Promote guidance on self-care and wellbeing for LGBT+ members/community.

4.2 Reviewing and improving policies

A working environment is only truly supportive if that support is underpinned by policies and procedures.

The survey respondents said that while policies that ensured LGBT+ people were included in standard working practices, like parental or adoption leave or medical leave, were increasingly widespread, policies intended to address poor or difficult behaviour were often lacking.

Ensuring that the international nature of science is also reflected in these policies is essential so that LGBT+ staff who travel or collaborate internationally are aware of the support available to them. There should be considerations for LGBT+ staff and students who have come out while in the UK, but are returning home to less inclusive countries.

Creating an environment where everyone feels welcome means addressing discrimination and harassment of every kind, whether this is the use of homophobic language, even when supposedly joking, or the exclusion of subgroups from LGBT+ networks. Empowering everyone to call out discriminatory actions or offensive behaviour when they see them is essential, and needs clear guidance available through management or policies.

Having systems with the flexibility for scientists who have changed names or genders would be helpful for more than just transgender staff; those who have changed marital status, those who have experienced abusive relationships and those who are in or have moved from other countries without supportive LGBT+ rights might all have reason to change their name or other personal details.

Individual	Employer	Learned Society
<ul style="list-style-type: none"> • Don't just be a bystander, be an advocate – if you see that policies and practices have lapsed then do what you can within your authority to fix it, or raise it with senior managers. • Report to your managers the policies that you feel are needed or that need to be reviewed in order to support LGBT+ people. • As a manager, ensure you are aware of policies and implement them consistently. Prioritise the concerns brought to you by staff, and make time to report on outcomes in future meetings. • Take some time to read up on policies that support LGBT+ people, so that you can signpost others to support. 	<ul style="list-style-type: none"> • Audit your policies to ensure they have been considered from LGBT+ people's perspectives. • Make all policies visible and at all organisational levels. • Ensure there is a clear bullying and harassment policy that specifically includes guidance against the discrimination and harassment of LGBT+ staff, including the deliberate misuse of pronouns. • Ensure that all staff are aware of how to report bullying and harassment. • Set up, or review, responsibility and terms of reference for equality and diversity at every level through the organisation, e.g. champion or committee. • Review your workspaces and equipment for provision of LGBT+ inclusion, for example providing all-gender/gender neutral toilets and private showers/changing rooms. 	<ul style="list-style-type: none"> • Promote good practice guidance on ensuring policies have been considered from LGBT+ people's perspectives. • Consider how trans members can change their member details, pronouns and titles and use these consistently. • Promote advice, guidance and signposting as appropriate for LGBT+ members travelling abroad. • Ensure there is a clear bullying and harassment policy that is inclusive to LGBT+ staff/ members. • Develop expected behaviour and professional practice guidelines for members, events and conferences including online offensive behaviour. • Ensure that all staff and members are aware of how to report bullying and harassment. • Set up, or review, responsibility and terms of reference for equality and diversity at every level through the organisation, e.g. champion or committee.

4.3 Introducing and improving training

Training that supports LGBT+ staff could be used more effectively in nearly all work environments. Respondents would value more practical training, particularly targeting negative or harmful behaviours, such as use of homophobic language or misuse of pronouns. If carefully done, this sort of training could be invaluable to those respondents who as allies wished to call out and address this kind of behaviour.

LGBT+ networks can be used to guide and inform training.

Training options should be provided for managers at every level to equip them to resolve difficult situations, and to help staff action policies and practices that support LGBT+ staff. Training needs to be science-specific, to engage with nuances of the physical sciences environment.

Senior leaders should lead by example, not excusing poor practice by merit of their seniority, but reinforcing institutional policy through their actions.

“If we are really serious about diversity, then institutions need to take responsibility, both for our actions and for the consequences of the things that we say.”

Clara Barker, TEDXLondonWomen, December 2018

Individual	Employer	Learned Society
<ul style="list-style-type: none"> • Request training from your employer wherever possible. • Take up training opportunities when offered, and be active participants when there. 	<ul style="list-style-type: none"> • Provide training for all staff on LGBT+ awareness. • Provide training on transgender inclusion and correct pronoun usage for all staff, whether or not you have transgender staff. • Provide bystander training for all staff, to support them in knowing how to act if they witness bullying or harassment. • Provide training for all managers, to introduce or update their skills in resolving difficulties, dealing with difference, and supporting their staff through change, whether or not you have openly LGBT+ staff. • Support any training by building in time for follow-up into staff review or 1-1 meetings. 	<ul style="list-style-type: none"> • Promote guidance on how to access LGBT+ supportive training courses, which provide practical advice and guidance for controlling use of discriminatory behaviours in a safe space. • Promote training in resolving difficulties, dealing with difference, and supporting people or members through change. • Consider how to work with others to develop science-specific training, particularly for leaders such as heads of departments or CEOs of companies • Ensure all frontline staff are trained to support LGBT+ members.

Appendix 1: Glossary

The language that is used around LGBT+ issues is changing rapidly, as our understanding of the challenges being faced by LGBT+ people also progresses. For this report we are using terminology that is mostly based on those used by Stonewall, definitions for which can be found below. Stonewall regularly update their glossary; you can find additional terms and updated definitions on their website^{xi}.

Ally: A (typically) straight and/or cis person who supports members of the LGBT+ community.

Asexual or Ace: Ace is an umbrella term used to describe a variation in levels of romantic and/or sexual attraction, including a lack of attraction. Ace people may describe themselves using one or more of a wide variety of terms, including, but not limited to, asexual, aromantic, demis and grey-As.

Bi: Bi is an umbrella term used to describe an emotional, romantic and/or sexual orientation towards more than one gender. Bi people may describe themselves using one or more of a wide variety of terms, including, but not limited to, bisexual, pan, bi-curious, queer, and other non-monosexual identities.

Cisgender or Cis: Someone whose gender identity is the same as the sex they were assigned at birth. Non-trans is also used by some people.

Closeted / (in the) closet: Keeping something secret, usually aspects of your gender and / or sexual identity.

Coming out: When a person first tells someone/ others about their identity as lesbian, gay, bi or trans.

Deadnaming: Calling someone by their birth name after they have changed their name. This term is often associated with trans people who have changed their name as part of their transition.

Gay: Refers to a man who has an emotional, romantic and/or sexual orientation towards men. Also a generic term for lesbian and gay sexuality – some women define themselves as gay rather than lesbian.

Gender: Often expressed in terms of masculinity and femininity, gender is largely culturally determined and is assumed from the sex assigned at birth.

Gender identity: A person's innate sense of their own gender, whether male, female or something else (see non-binary below), which may or may not correspond to the sex assigned at birth.

Heterosexual / Straight: Refers to a man who has an emotional, romantic and/or sexual orientation towards women or to a woman who has an emotional, romantic and/or sexual orientation towards men.

Homophobia: The fear or dislike of someone, based on prejudice or negative attitudes, beliefs or views about lesbian, gay or bi people. Homophobic bullying may be targeted at people who are, or who are perceived to be, lesbian, gay or bi.

LGBT+: An acronym used to represent lesbian, gay, bi and trans plus other sexes, sexualities and genders such as intersex, queer, questioning, asexual and pansexual. The “+” is intended to ensure our work is inclusive of any groups with related characteristics.

Lesbian: Refers to a woman who has an emotional, romantic and/or sexual orientation towards women.

Non-binary: An umbrella term for people whose gender identity doesn't sit comfortably with 'man' or 'woman'. Non-binary identities are varied and can include people who identify with some aspects of binary identities, while others reject them entirely.

Pan / Pansexual: Refers to a person whose emotional, romantic and/or sexual attraction towards others is not limited by sex or gender.

Passing: If someone is regarded, at a glance, to be a cisgender man or cisgender woman. Cisgender refers to someone whose gender identity matches the sex they were 'assigned' at birth. This might include physical gender cues (hair or clothing) and/or behaviour which is historically or culturally associated with a particular gender.

Pronoun: Words we use to refer to people's gender in conversation - for example, 'he' or 'she'. Some people may prefer others to refer to them in gender neutral language and use pronouns such as they/their and ze/zir.

Queer: In the past a derogatory term for LGBT+ individuals. The term has now been reclaimed by LGBT+ young people in particular who don't identify with traditional categories around gender identity and sexual orientation but is still viewed to be derogatory by some.

Questioning: The process of exploring your own sexual orientation and/or gender identity.

Sex: Assigned to a person on the basis of primary sex characteristics (genitalia) and reproductive functions.

Sexual orientation: A person's emotional, romantic and/or sexual attraction to another person.

Trans: An umbrella term to describe people whose gender is not the same as, or does not sit comfortably with, the sex they were assigned at birth. Trans people may describe themselves using one or more of a wide variety of terms, including (but not limited to) transgender, transsexual, gender-queer (GQ), gender-fluid, non-binary, gender-variant, crossdresser, genderless, agender, nongender, third gender, two-spirit, bi-gender, trans man, trans woman, trans masculine, trans feminine and neutrois.

Trans history: Someone who identifies as male or female or a man or woman, but was assigned the opposite sex at birth. This is increasingly used by people to acknowledge a trans past.

Transgender man: A term used to describe someone who is assigned female at birth but identifies and lives as a man. This may be shortened to trans man, or FTM, an abbreviation for female-to-male.

Transgender woman: A term used to describe someone who is assigned male at birth but identifies and lives as a woman. This may be shortened to trans woman, or MTF, an abbreviation for male-to-female.

Transitioning: The steps a trans person may take to live in the gender with which they identify. Each person's transition will involve different things. For some this involves medical intervention, such as hormone therapy and surgeries, but not all trans people want or are able to have this. Transitioning also might involve things such as telling friends and family, dressing differently and changing official documents.

Transphobia: The fear or dislike of someone based on the fact they are trans, including the denial/refusal to accept their gender identity.

Appendix 2: Research methodology

The questionnaire was targeted at people who were working, teaching or studying in a physical sciences field and identified as LGBT+ and allies, as well as those that have left or not pursued a career in the physical sciences because they felt excluded because of their gender identity or sexual orientation. An external researcher carried out a series of 12 follow-on interviews.

2a. Questionnaire responses

As this survey specifically targeted those who are LGBT+ or allies, these results are not representative of the whole physical sciences community. Instead, they provide clear insight into of the experiences of LGBT+ people within physical sciences environments.

1,445 responses to the questionnaire were logged. Following the removal of duplicates, ineligible entries and those which disqualified themselves; this was reduced to 1,025 as shown in **table 1**. Of these, 879 were currently in a physical sciences career, 637 of whom were working rather than studying. This cohort forms the main group for this report. Not all respondents gave answers to all of the questions.

Table 1: Number of respondents in different physical sciences roles.
The shaded boxes indicate those groups included in the main cohort for analysis.

Current role	Number of respondents
Not currently in a physical sciences career	146
Undergraduate	242
Doctoral student	218
Employed by a university	221
Employed/training in a scientific role	100
Primary school/secondary school/Further Education teachers	49
Other	49
TOTAL	1025

Table 2: Number of respondents working in different physical sciences fields

Field	Number of respondents
Astronomy	95
Chemistry	202
Physics	238
Other	102
TOTAL	637

Table 3: Number of respondents affiliated with each of the professional organisations

Organisation	Number of respondents
IOP	170
RAS	56
RSC	122

2b. LGBT+ characteristics of the respondents

Gender identity

Table 4: Gender break down of respondents to the survey

Gender	Number of responses
Man	285
Woman	184
Non-binary	36

Table 5: Trans status of the respondents

	Number of responses
Cisgender	450
Transgender	37

Sexual orientation

Table 6: Sexual orientation characteristics of the respondents

Sexual orientation	Number of respondents
Asexual	20
Bisexual/pansexual	90
Gay	179
Gay woman/Lesbian	45
Heterosexual	103
Other	30

A large number of those who responded did not want to disclose their gender or sexual orientation characteristics.

2c. Interview participants

We asked questionnaire participants to indicate if they would be willing to take part in follow up work for the survey. 12 respondents were subsequently interviewed.

Table 7: Characteristics of the interview participants

Role	Gender	Cis or Trans	Sexual orientation	Age group
Scientific role	Man	Cis	Gay	40 - 49
University	Woman	Cis	Bisexual	30 - 39
University	Man	Cis	Gay	40 - 49
Scientific role	Woman	Cis	Lesbian	30 - 39
University	Woman	Trans	Pansexual	30 - 39
University	Man	Trans	Gay	40 - 49
University	Woman	Cis	Lesbian	20-29
University	Non-binary	Trans	Bisexual	40 - 49
University	Man	Cis	Heterosexual	40 - 49
Doctoral student	Man	Cis	Gay	20-29
University	Man	Cis	Heterosexual	50-59
Scientific role	Man	Cis	Bisexual	40 - 49

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