

1 February 2021

All-Party Parliamentary Group on Diversity and Inclusion in STEM inquiry into Equity in the STEM workforce

Key Points

- The Royal Society is committed to increasing diversity in STEM and is a sponsor of the APPG on diversity and inclusion in STEM. Any lack of diversity in the scientific workforce represents both an absence of talent that the UK could be benefitting from and a lack of opportunity for people in the UK.
- The Society carries out an annual analysis of diversity data in relation to our activities including research grant recipients and our Fellowship, which is published on our website. Diversity data for Royal Society staff was included in the annual diversity data report for the first time in 2019.
- The Society has commissioned analyses of ethnicity and of disability data in STEM academia to establish the diversity profile of the pool of researchers and students in academia to inform actions to improve diversity and inclusion internally and across the sector.
- The Society is also working with the Institute of Employment Research at Warwick University to develop a methodology for using SOC code classifications to provide a consistent definition of STEM occupations.
- We have commissioned a survey of our UK and overseas award holders to help understand the ongoing impact of the Covid-19 pandemic to inform our policies and the support we provide to those award holders

1. Introduction

- 1.1. The Royal Society is the national academy of science for the UK. Its Fellows include many of the world's most distinguished scientists working across a broad range of disciplines in academia, industry, charities and the public sector. The Society draws on the expertise of the Fellowship to provide independent and authoritative advice to UK, European and international decision makers.
- 1.2. The Society's fundamental purpose, reflected in its founding Charters of the 1660s, is to recognise, promote, and support excellence in science and to encourage the development and use of science for the benefit of humanity. Our strategic priorities therefore are to promote excellence in science; to support international collaboration; and to demonstrate the importance of science to everyone.
- 1.3. The Society is committed to increasing diversity in science, technology, engineering and mathematics ('STEM') by seeking out participation from underrepresented groups, in order to build and develop a world in which studying and working in science are open to all. Any lack of diversity in the scientific workforce represents both an absence of talent that the UK could be benefitting from and a lack of opportunity for people in the UK. A diverse and inclusive scientific workforce draws from the widest range of backgrounds, perspectives and experiences thereby maximising innovation and creativity in science for the benefit of humanity. It is also important for researchers to follow diverse paths and approaches, taking opportunities to become more rounded and entrepreneurial and fuelling valuable innovation that we all benefit from.

- 1.4. The Diversity Committee (established in 2015) oversees the Royal Society's diversity and inclusion strategy and related activities. In 2019, the Committee set up two sub-groups to focus on supporting scientists from ethnic minorities and supporting scientists with disabilities. The Committee's other work has included developing animations on 'making better group decisions' and 'unconscious bias', the 'Parent Carer Scientist campaign' - which celebrated the work-life patterns of 150 scientists in the UK - and piloting mentoring schemes for young people including the Destination STEMM mentoring scheme for Year 12 Black students in London and supporting in2scienceUK for students from disadvantaged backgrounds.
- 1.5. The submission shares key findings from the most recent analysis of the Royal Society's own diversity data, details of two upcoming reports commissioned by the Society relating to the demographics of workers in STEM academia, and an update of our ongoing work to develop a widely agreed methodology for defining the STEM workforce to inform future evidence-gathering, monitoring and reporting.
- 1.6. As well as submitting to this inquiry, the Society is a sponsor of the All-Party Parliamentary Group on Diversity and Inclusion in STEM

2. The demographics of STEM working in the Royal Society

2.1. As part of the ongoing diversity programme agreed by the Council of the Royal Society, diversity data is gathered and analysed in relation to the Society's activities. The Society has published an annual diversity data report since 2015. Each report covers diversity in relation to the Society's Fellowship, grant offers and attendees at Society meetings and events. Diversity data for Royal Society staff was included in the annual diversity data report for the first time in 2019. The full report is available [here](#)¹.

Fellowship²

- 2.2. The Royal Society is a self-governing Fellowship of distinguished scientists drawn from all areas of STEM. A fixed number of new Fellows and Foreign Members are elected annually for life through a peer review process on the basis of excellence in science.
- 2.3. In 2019, 10% of the Fellowship was female (170 individuals) and 90% was male (1,516 individuals). The proportion of the Fellowship that is female has increased slightly from 9% (157 individuals) in 2018. However, the proportion of female Fellows elected each year has been generally increasing over time.
- 2.4. In 2020, 51 new Fellows, 10 Foreign Members and one Honorary Fellow were elected to the Fellowship. 14 of the intake of Fellows (9) and Foreign Members (5) are women – this is 22.6% of the total 2020 intake. This is considerably higher than the proportion in 2014 (13%, 8 individuals), but slightly lower than the proportion in 2016 and 2017 (25%, 15 individuals in both years).

¹ It should be noted that there is no comparator that can be used consistently across all sections of the Society's diversity reporting. Consequently, different benchmarks have been used across the report, or not included at all for sections where there is no appropriate benchmark data. The comparative data and the rationale behind the choice of comparator are set out in a table on pages 5 to 10 of the report and in each relevant section.

² Comparisons are made in this section with the proportion of Fellows and Foreign Members in each category in 2018. However, in both 2018 and 2019, less than half of Fellows and Foreign Members completed the annual diversity survey (though the proportion of respondents was higher in 2019 (49%, compared to 39% in 2018). Consequently, neither dataset can be interpreted as representative of the whole Fellowship and any changes may reflect differences in the proportion of respondents, rather than other factors. Caution should therefore be used when making comparisons between the two years.

- 2.5. The Society is taking steps to increase the numbers of women in the Fellowship, by encouraging the nomination of more women candidates and ensuring that women are actively sought for recommendation to committee. However, the lack of gender balance in the Society's Fellowship reflects the wider problems of the scientific community. An analysis of Higher Education Statistics Authority data by Jisc on behalf of the Royal Society showed that in the UK, only 20.9% of professors in STEM were female (2,600 individuals).
- 2.6. The Society has not historically collected data on ethnicity and disability when individuals are first elected to the Fellowship. In March 2020, an invitation to complete a diversity monitoring survey was sent to all Fellows and Foreign Members, which included questions relating to ethnicity and disability. Of the 1,686 Fellows and Foreign Members, 836 (49%) completed the survey. The data below reflects the 49% of Fellows and Foreign Members who responded to the questions on ethnicity and disability and should not be interpreted as representative of the entire Fellowship and Foreign Membership. Fellows and Foreign Members who preferred not to answer have been excluded from these figures.
- 2.7. Regarding ethnicity, 818 Fellows and Foreign Members provided a response. Of these, the proportion of Fellows and Foreign Members who said that they were from a Black or minority ethnic background was 5% (42 individuals) in 2019, the same proportion as in 2018 (5%, 29 individuals). The majority of Fellows and Foreign Members were White British (73%, 596 individuals), compared to 75% in 2018 (482 individuals). In 2019, 22% of respondents were White other (180 individuals) compared to 20% (128 individuals) in 2018.
- 2.8. Regarding disability, 822 Fellows and Foreign Members provided a response. Of these, 10% of respondents stated that they have a disability (78 individuals) and 90% of respondents stated that they did not have a disability (744 individuals). The proportion of Fellows and Foreign Members stating they have a disability has increased slightly since 2018, when 9% (55 individuals) said they had a disability.
- 2.9. While we have made some improvements in gender representation in recent years, we have more to do to widen ethnic minority representation, and with more urgency. The Diversity Committee has commissioned analysis of Higher Education Statistics Authority (HESA) data to give us a comprehensive picture of ethnicity amongst STEM university students and researchers at different career stages (see more in section 3). This will help us understand at what point the science system is losing talented Black and ethnic minority researchers, resulting in what is now a very small percentage of BAME researchers in senior positions. This will help target the steps that the Society and others can take to prevent this loss of talent. We have published similar work to understand the challenges faced by scientists with disabilities.

Royal Society Staff

- 2.10. As at 1 September 2019, the Royal Society employed 218 staff. Age and gender data is recorded after staff are recruited through the staff HR portal, ADP. The response rate for age and gender data is 100%. Ethnicity and disability data is not currently collected through ADP. In September 2019, a 'snapshot' survey was carried out to provide accurate data on the ethnicity and disability of Royal Society staff. Of 220 staff employed at that time, 168 responded to the question on ethnicity (76%) and 167 responded to the question on disability (76%).

2.11. In 2019, 65% of staff were female (141 individuals) and 35% were male (77 individuals). 8% of staff were from Black or minority ethnic backgrounds (31 individuals). The majority of staff were White British (61%, 102 individuals). The proportion of staff from White other backgrounds was 21% (35 individuals). 13% of staff said they had a disability (21 individuals) and 87% of staff said they did not have a disability (146 individuals).

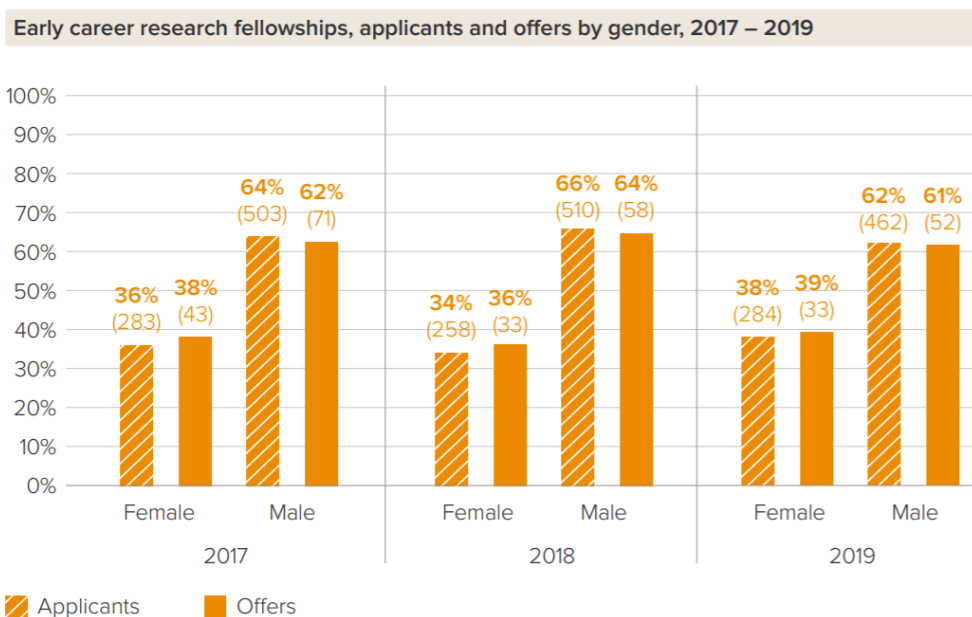
Research Fellowship Grants

2.12. About 1,600 researchers are currently funded by the Royal Society, including approximately 950 Research Fellows. The Society provides grants and research fellowships to outstanding researchers primarily based in UK institutions and to foster collaborations between UK and international researchers. We have a range of schemes to support talented early career and senior scientists pursuing both discovery-led and applied research.

2.13. Our three early career research fellowships (Dorothy Hodgkin Fellowship, University Research Fellowship and Sir Henry Dale Fellowship) are awarded to scientists who have the potential to become leaders in their field to enable them to establish an independent research career in the UK. Applicants from all grant schemes are asked to complete an online diversity monitoring form when applying. Charts below show the proportion and number of applicants and offers for the Society's early career fellowship schemes, by gender, ethnicity and disability, from 2017 to 2019. See pages 26 to 37 of the [full report](#) for more information on these schemes.

2.14. The Society's Grants and Diversity Committees commissioned the Careers Research Advisory Centre (CRAC) to establish the diversity profile of postdoctoral researchers in the UK eligible for the Royal Society's early career fellowship programmes. The Society wanted to use this profile to compare the diversity of its award holders against the profile of potential applicants, and plans to publish this analysis alongside the CRAC report.

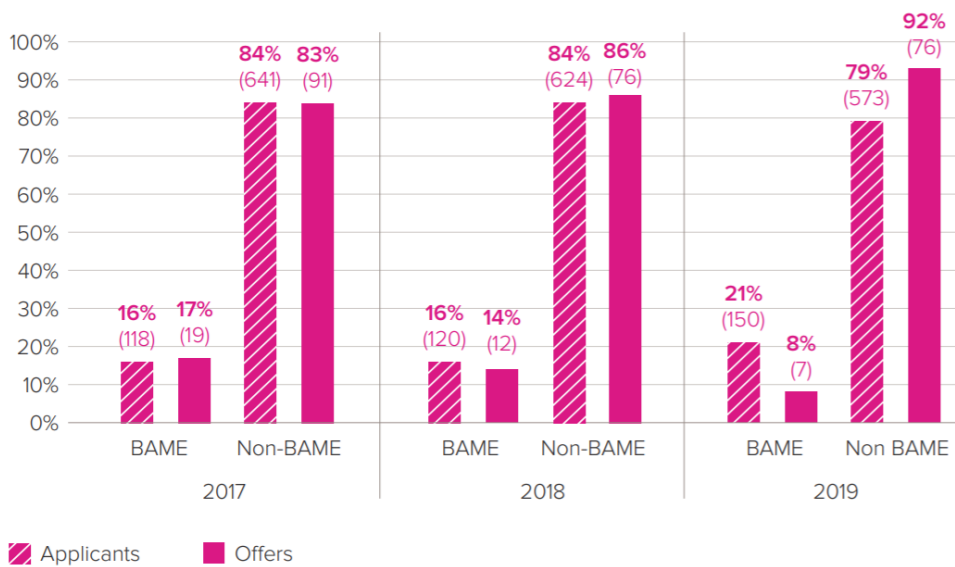
2.15.



The proportion of offers made to females has been higher than the proportion of applicants in each year from 2017 to 2019. The proportion of offers made to males has been lower than the proportion of applicants in each year from 2017 to 2019.

2.16.

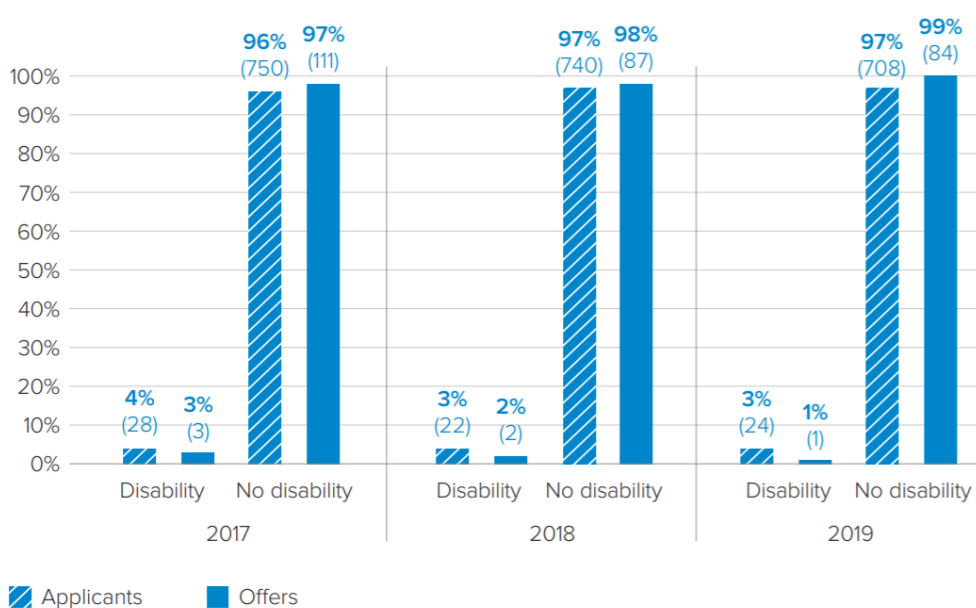
Early career research fellowships, applicants and offers by ethnicity, 2017 – 2019



The proportion of applicants from Black and minority ethnic backgrounds increased in 2019 from 16% in 2017 and 2018 to 21% in 2019. However, the proportion of offers made to applicants from Black and minority ethnic backgrounds was lower in 2019 than the preceding two years (8% (7 individuals) in 2019, compared to 17% (19 individuals) in 2017 and 14% (12 individuals) in 2018).

2.17.

Early career research fellowships, applicants and offers by disability, 2017 – 2019



3. The demographics of workers in STEM academia

3.1. Disability and diversity in STEM academia reports

Black and ethnic minority students and staff

3.2. In 2019, the Diversity Committee recommended that the Society should obtain detailed data on the proportion of ethnic minority students and staff in STEM, in order to identify areas of disparity and possible interventions that the Society could take.

3.3. The Society commissioned the Joint Information Systems Committee (Jisc) to carry out detailed quantitative research into the proportion of black and ethnic minority students and staff working in science, technology, engineering and mathematics ('STEM') and how this has changed over time. The data in the report will enable the Society to identify areas of under-representation and target interventions appropriately.

3.4. The report contains analysis on UK domiciled STEM students, graduates and leavers and academic staff working in STEM at UK higher education providers from 2007/08 to 2018/19. It analyses contextual and outcomes data comparing those who are black, Asian and minority ethnic with those who are white. It also provides further analysis broken down by ethnic group. The Society is aiming to publish the final report in the coming weeks and is undertaking further work to better understand some of the key findings.

Staff with disabilities in STEM - trends

3.5. In 2019, the Diversity Committee recommended that the Society obtain detailed quantitative research into the proportion of students and staff with disabilities in STEM, in order to identify areas of under-representation and be able to target interventions appropriately. The Society commissioned Jisc to carry out this analysis, again based on HESA data. Jisc's final report contains analysis on UK-domiciled students, graduates and leavers studying STEM, and academic staff working in STEM at UK higher education providers from 2007/08 to 2018/19. It analyses contextual and outcomes data comparing those with a known disability with those without a known disability. It also provides further analysis broken down by type of disability. The report was published on 21 January and is available here: <https://royalsociety.org/topics-policy/diversity-in-science/disability-reports/>

Barriers to disability disclosure and progression in STEM for staff with disabilities

3.6. Available statistical data shows a disparity in the proportion of students and staff declaring a disability in various STEM fields. The reason for this is not clear from the available data. It is possible that the variation is due to people with disabilities leaving STEM altogether or choosing not to declare their disability at later career stages in academia.

3.7. In November 2019, the Society commissioned the Careers Research and Advisory Centre (CRAC) to carry out qualitative research to understand the low level of disclosure of disability amongst scientists in the academic workforce, why this occurs, and how the Royal Society might address it. The report was published on 21 January and is available here: <https://royalsociety.org/topics-policy/diversity-in-science/disability-reports/>. It is based on an evidence review of published literature and professional practice about disability disclosure (covering higher education and other

sectors). CRAC also carried out interviews with subject matter experts, and 22 interviews with scientists with disabilities to inform the report.

- 3.8. The final report makes 15 recommendations, divided into recommendations for funders, higher education institutions and the sector more generally. The recommendations for funders are aimed at making the process for applying for, and being awarded research grants, more inclusive. The recommendations for higher education institutions are aimed at making recruitment, progression and the working environment in higher education more accessible and inclusive for people with disabilities. Finally, the recommendations for the STEM sector as a whole are aimed at challenging perceptions and embedding consistency. For example, it is recommended that the sector works together to embed a consistent definition of what is considered to be a disability and publicise more widely how the disability disclosure process works.
- 3.9. The report also makes recommendations for further research that the sector should undertake, including exploring the reasons for the low levels of disability disclosure at senior career stages, and whether more disabled scientists are selecting teaching-focused pathways (and why).

Diversity of researchers eligible to apply for early career fellowships

- 3.10. The Society's Grants and Diversity Committees have commissioned the Careers Research and Advisory Centre (CRAC) to establish the diversity profile of postdoctoral researchers in the UK eligible for the Royal Society's early career fellowship programmes. The Society will use this profile to compare the diversity of its award holders against the profile of potential applicants and is developing a programme of work to try and increase applications from underrepresented groups. It also wishes to share the methodology and findings from the CRAC report with other funders.

4. Developing a definition of the STEM workforce to inform future evidence-gathering, monitoring and reporting

- 4.1. The Office for National Statistics classifies jobs according to a system of Standard Occupation Classification ('SOC') codes. The SOC codes alone cannot be used straightforwardly to define the STEM workforce. In the past, this has resulted in organisations using different sets of SOC codes to define the STEM workforce, resulting in inconsistent figures being stated when discussing the proportion of under-represented groups in the workforce.
- 4.2. In 2017, the Royal Society commissioned the Institute for Employment Research at Warwick University ('IER') to propose a detailed methodology for using SOC code classifications to define STEM occupations. The IER produced a draft report that set out a four-category approach to defining STEM occupations using the 4-digit SOC codes. Following the publication of SOC 2020 by the Office for National Statistics ('ONS'), the Society has asked the IER to update their 2017 report to reflect SOC 2020 using 6-digit SOC codes for greater granularity. Using the IER methodology will allow organisations to track diversity in STEM in a consistent way.
- 4.3. This updated report has now been completed and the Society is seeking feedback from stakeholders prior to publication early in 2021.

5. The impact of COVID-19 on the STEM workforce

5.1. The Society appreciates that the impact of the Covid-19 pandemic on researchers and their teams will be varied for many reasons, including research-related and life circumstances. The Society has commissioned a survey of our UK and overseas award holders to help understand the ongoing impact of the pandemic to inform our policies and the support we provide to those award holders.

For further information, please contact public.affairs@royalsociety.org