IOP Institute of Physics

Physics Staff in UK Universities

Data Brief

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Terms of Reference

A description of the data set used, and the terminology used throughout this report is given below.

Source:

The data used in this report is gathered and licenced by the Higher Education Statistics Authority (HESA). The data concerns only staff members at Higher Education institutions and includes information on protected characteristics such as gender and ethnicity.

Rounding:

Staff numbers are rounded up to the nearest 5.

If <5 staff are shown, that could represent 1 or 2 staff. If 0% is shown, that represents a number of staff greater than 0 but less than 0.5%. Blank cells represent no staff at all.

Percentages are calculated using unrounded totals, and so it's not always possible to replicate the percentage shown using the rounded totals indicated.

Percentages are only shown if 100% represents more than 22.5 staff and are usually rounded to the nearest 1%.

In summary, percentages are correct to within 1%, and staff numbers are correct to within 5.

Tense:

Some statistics are written as "are" or "is". This refers to the most recent academic year for which data are available (2020/21)

Location:

All statistics refer to staff at Higher Education institutions in the United Kingdom including Northern Ireland.

Selected STEM subjects:

In this report, we compare Physics, Biosciences, Chemistry, Electronic & electrical & computer engineering, IT, systems sciences and computer software engineering, and Mathematics. When these are combined, this group is referred to as selected STEM (Science, Technology, Engineering and Maths) subjects in this report. This group of subjects have been selected to benchmark Physics against other subjects.

Gender:

Gender in the document uses the classification in the HESA Sexual Identification data field1, which broadly reflects students' gender identity and whose available options are Male, Female, and Other. Other is included for students who align with terms such as intersex, androgyne, intergender, ambigender, gender fluid, polygender and gender queer.

Nationality:

Nationality in this report is broken down into three categories. The three categories are:

- **United Kingdom (UK)** – – this includes England, Wales, Scotland, Northern Ireland, Guernsey, Jersey and the Isle of Man.

- **European Union (EU)** – this includes all member nations of the EU.

- **Non-EU, Non-UK** – this includes all countries that are not included in either category above. In some parts of this report this category maybe referred to as non-EU.

- **Not known** – this includes members of staff with unknown nationality.

Ethnicity:

HESA provides a detailed ethnicity breakdown for staff in Higher Education. For this analysis ethnicities are grouped together as there are too few staff members in some ethnicities to provide a meaningful more detailed breakdown.

The groupings used are as follows:

- Asian
- Black
- Mixed
- White
- Other
- Unknown

However, a detailed breakdown is provided in a table at the beginning of every ethnicity section which provides the overall rounded totals for each ethnicity. The ethnicities are as follows:

- Asian or Asian British – Bangladeshi
- Asian or Asian British – Indian
- Asian or Asian British – Pakistani
- Other Asian background
- Black or Black British – African
- Black or Black British – Caribbean
- Other Black background
- Chinese
- Mixed
- White
- Other
- Unknown

Academic and Non-academic:

- Academic contract staff are defined as professionals holding a contract for planning, directing andundertaking academic teaching and research within HE providers. Examples of such contracts include those for vice-chancellors, medical practitioners, dentists, veterinarians and other health care professionals who undertake lecturing or research activities.

- Non-academic contract staff are defined as members of staff who are not holders of an academic contract,including managers, non-academic professionals, student welfare workers, secretaries, caretakers and cleaners.

Summary

This report details the statistics for Physics staff in Higher Education in the UK. Physics is compared to all other academic disciplines grouped together as well as a more detailed analysis of Physics compared to selected STEM subjects. The data set used to understand staff trends in Higher Education was provided by the Higher Education Statistics Authority and includes data for the academic years 2012/13 to 2020/21 (the most recent year available).

Characteristics such as gender, nationality, ethnicity, and age have been included, as well as information on salary, in order to gain an understanding of the Physics staff population and how it compares to other areas within academia.

The key messages identified in this report are as follows:

- The total number of staff for Physics in Higher Education, including academic and non-academic staff members, increased by 27% from 2012/13 to 2020/21, with 1% increase in the last year alone.
- The number of academic staff in Physics increased by 33% from 2012/13 to 2020/21.
- The number of female academic staff members in Physics increased by 60% and now makes up 21% of academic contracts in Physics compared to 17% in 2012/13.
- There are 134% more female Physics professors in 2020/21 than there were in 2012/13.
- Staff from the EU represent 25% of academic staff in 2020/21 and that figure has increased 43% from 2012/13. Staff from non-EU, non-UK countries represent 19% of academic contracts in 2020/21 and the number has increased 68% from 2012/13.
- For Physics, the number of Asian academic staff has increased by 82% and number of Black academic staff members has increased from 10 to 30.
- Excluding the staff with unknown ethnicity, Black and minority ethnic people are underrepresented in Physics non-academic staff (9%). Despite Black and minority ethnicities being overrepresented in Physics academic staff, they are underrepresented among professors (8%).
- The age of Physics staff is skewed towards younger age groups. The age groups with the greatest proportion of staff are 26 to 30 and 31 to 35 years old and represents respectively 16% and 17% of all Physics staff.
- Female Physics staff are more likely than their male colleagues to be in a low salary band.

All Staff

An analysis of all staff, that is including academic and non-academic staff, is first considered. **Table 1** shows how the number of staff employed for each subject has changed with time. Biosciences has the greatest number of staff out of the selected STEM subjects, and consistently has more than double the number of staff members than any of the other subjects considered with the only exception of IT, systems sciences & computer software engineering in 2020/21.

Discipline	Academic Year								
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Physics	5,895	6,385	6,855	6,990	7,090	7,285	7,510	7,445	7,490
Biosciences	18,165	19,435	19,865	19,700	19,905	20,180	20,255	19,815	19,345
Chemistry	5,160	5,595	5,695	5,740	5,805	5,870	5,910	5,755	5,525
Electrical, electronic & computer engineering	5,060	5,285	5,555	5,675	5,665	5,760	5,950	6,070	5,960
IT, systems sciences & computer software engineering	8,380	8,670	8,605	8,640	9,080	9,590	10,065	9,835	10,305
Mathematics	5,020	5,380	5,390	5,520	5,575	5,725	5,845	5,935	5,995

Table 1: *HESA data for staff by subject from 2012/13 to 2020/21.*

Table 2 shows the percentage increase each year from the previous year in the number of staff for Physics and selected STEM subjects from 2012/13 to 2020/21. Physics had the largest overall increase in staff numbers (27%) from 5,895 to 7,490, an increase of 1,595 total staff members, and even though Biosciences has the greatest number of staff, it saw the smallest percentage increase in staff numbers over the same time period (7%). Physics saw the largest increase in the staffing numbers in 2013/14 and 2014/15 which saw the number of Physics staff increase by 8% and 7% respectively. From 2015/16 to 2018/19, the increase in Physics staff was between 1% and 3%. Chemistry saw the greatest percentage increase in staff numbers (9%) in 2013/14, however, after this academic year until 2018/19 the percentage increase in staff numbers for Chemistry was between 1% and 2%. In 2019/20 the numbers of staff for all subjects decreased by between 1% and 3% with the only exceptions of Mathematics and Electrical, electronic & computer engineering which increased by 2%. 2020/21 saw a continuation of the downtrend started in 2019/20 for Biosciences and Chemistry by 2% and 4% respectively, and a recovery for Physics and IT, systems sciences & computer software engineering by 1% and 5% respectively.

Discipline	Academic Year									
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
Physics	5,895	8%	7%	2%	1%	3%	3%	-1%	1%	27%
Biosciences	18,165	7%	2%	-1%	1%	1%	0%	-2%	-2%	7%
Chemistry	5,160	9%	2%	1%	1%	1%	1%	-3%	-4%	7%
Electrical, electronic & computer engineering	5,060	4%	5%	2%	0%	2%	3%	2%	-2%	18%
IT, systems sciences & computer software engineering	8,380	3%	-1%	0%	5%	6%	5%	-2%	5%	23%
Mathematics	5,020	7%	0%	2%	1%	3%	2%	2%	1%	19%

Table 2: *HESA data for the percentage change from the previous year in staff for 2012/13 to 2020/21.*

Gender

In the academic year 2020/21, 26% of staff in Physics departments were female. This is significantly lower than the average for all other disciplines, where the proportion of staff that were female was 55%.

Figure 1: *Staff by gender for Physics and all other academic disciplines combined*

Over time, an increasing percentage of staff in Physics departments are female. Over the period from 2012/13 to 2020/21, the proportion of Physics staff that are female increased from 23% to the 26% stated above. During the same time period, the proportion of female staff in all other disciplines increased by one percentage point, see Figure 2.

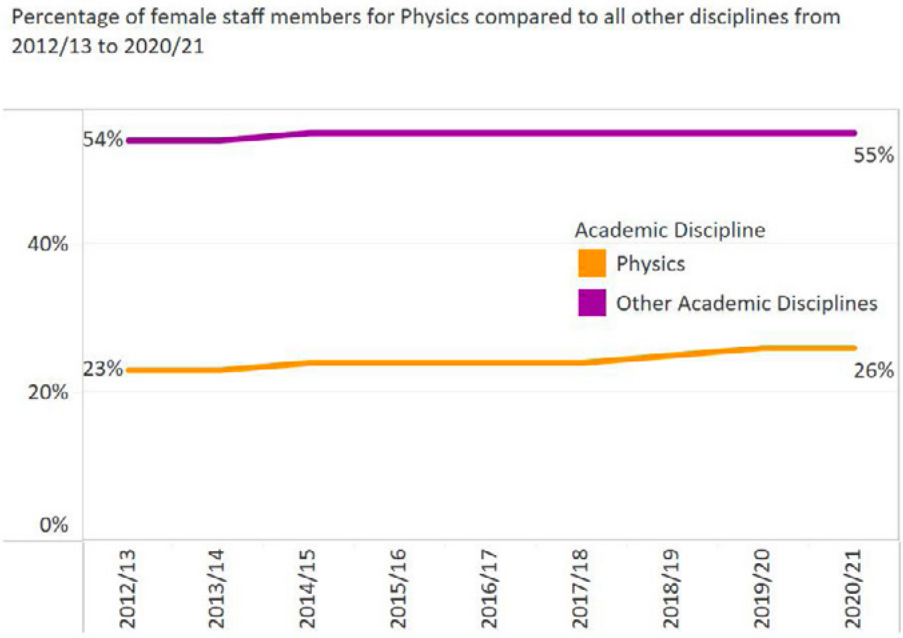

Figure 2: *Percentage of Physics staff in higher education that are female from 2012/13 to 2020/21*

Table 3 shows the total number of staff by gender for Physics and selected STEM subjects from 2012/13 to 2020/21. In 2012/13, the number of female staff in Physics was lower than in Mathematics and Chemistry, however by 2020/21, the number of female staff in Physics was greater than the number in Mathematics. Chemistry still has more female staff than Physics, however, the difference between the two subjects has reduced over time. Female STEM staff were 27% more likely in 2020/2021 to be in a physics department than in 2012/13.

		Academic Year								
Gender	Discipline	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Female	Physics	1,325	1,450	1,620	1,660	1,695	1,775	1,875	1,900	1,945
	Biosciences	9,075	9,745	10,005	9,980	10,160	10,350	10,360	10,130	9,915
	Chemistry	1,710	1,895	1,915	1,940	2,020	2,050	2,090	2,035	1,950
	Electrical, electronic & computer engineering	1,065	1,125	1,175	1,240	1,220	1,230	1,340	1,410	1,330
	IT, systems sciences & computer software engineering	2,425	2,555	2,540	2,525	2,720	2,770	2,900	2,775	2,885
	Mathematics	1,515	1,590	1,615	1,660	1,690	1,705	1,730	1,780	1,815
Male	Physics	4,565	4,935	5,230	5,330	5,395	5,505	5,635	5,535	5,535
	Biosciences	9,090	9,690	9,865	9,720	9,745	9,830	9,885	9,680	9,410
	Chemistry	3,445	3,700	3,780	3,795	3,785	3,820	3,820	3,715	3,570
	Electrical, electronic & computer engineering	3,995	4,160	4,380	4,435	4,445	4,530	4,605	4,655	4,630
	IT, systems sciences & computer software engineering	5,955	6,110	6,065	6,115	6,365	6,815	7,160	7,025	7,395
	Mathematics	3,505	3,790	3,775	3,860	3,885	4,015	4,115	4,150	4,165
Other	Physics						5	5	10	10
	Biosciences						5	5	10	20
	Chemistry						<5	<5	5	5
	Electrical, electronic & computer engineering							<5	5	5
	IT, systems sciences & computer software engineering						5	5	30	25
	Mathematics						<5	5	10	15

Table 3: *The total number of staff by subject from 2012/13 to 2020/21 by gender. (<5 represent 1 or 2 staff. Blank cells represent no staff at all.)*

From **Table 4** below, between 2012/13 and 2020/21 the number of female staff in Physics increased by 620 (an increase of 46%). This increase only produced a three percentage point increase in the overall proportion of Physics staff who are female in Higher Education (see Figure 2). This is because during the same time period, male Physics staff increased by 970 (an increase of 21%).

The largest increases in staff numbers, for most selected STEM subjects for both male and female staff, occurred between 2012/13 and 2014/15. From 2012/13 to 2013/14, the number of staff in Physics increased by 9% and 8% for female and male staff, respectively. From 2013/14 to 2014/15, female Physics staff saw the largest increase of any comparable subject across the time period looked at (12%).

Comparing the increase of female staff in Physics to other selected STEM subjects, Physics has seen the largest increase (46%). Other selected STEM subjects saw an increase in female staff of between 9-25%, the highest increase after Physics is seen in Electrical, electronic & computer engineering (25%). Other selected STEM subjects saw an increase in male staff of between 4-24%, the largest increase being seen in IT, systems sciences & computer software engineering (24%).

		Academic Year									
Gender	Discipline	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
Female	Physics	1,325	9%	12%	2%	2%	5%	6%	1%	2%	46%
	Biosciences	9,075	7%	3%	0%	2%	2%	0%	-2%	-2%	9%
	Chemistry	1,710	11%	1%	1%	4%	2%	2%	-3%	-4%	14%
	Electrical, electronic & computer engineering	1,065	5%	5%	6%	-2%	1%	9%	5%	-6%	25%
	IT, systems sciences & computer software engineering	2,425	5%	-1%	-1%	8%	2%	5%	-4%	4%	19%
	Mathematics	1,515	5%	2%	3%	2%	1%	1%	3%	2%	20%
Male	Physics	4,565	8%	6%	2%	1%	2%	2%	-2%	0%	21%
	Biosciences	9,090	7%	2%	-1%	0%	1%	1%	-2%	-3%	4%
	Chemistry	3,445	7%	2%	0%	0%	1%	0%	-3%	-4%	4%
	Electrical, electronic & computer engineering	3,995	4%	5%	1%	0%	2%	2%	1%	-1%	16%
	IT, systems sciences & computer software engineering	5,955	3%	-1%	1%	4%	7%	5%	-2%	5%	24%
	Mathematics	3,505	8%	0%	2%	1%	3%	2%	1%	0%	19%

Table 4: *HESA data for the percentage change from the previous year in staff by gender for 2012/13 to 2020/21.*

Nationality

Comparing staff in Physics departments to staff in all other academic disciplines in **Figure 3**, Physics has the highest proportion of staff from the European Union (EU) (21%) and other non-EU, non-UK countries (16%).

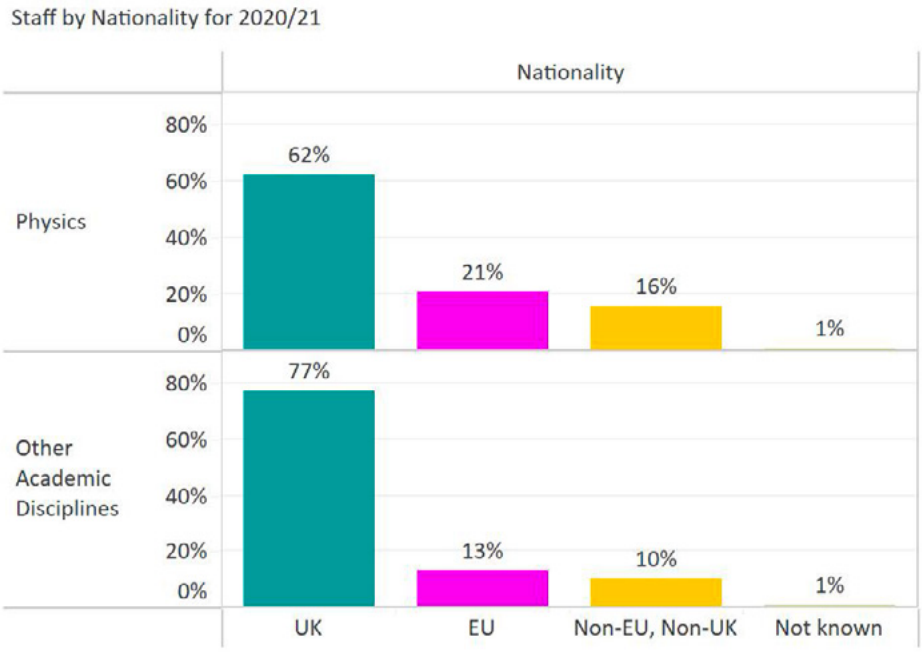

Figure 3: *HESA data for 2020/21 by nationality for Physics and all other academic disciplines*

Figure 4 shows that from 2012/13 to 2017/18 the percentage of Physics staff from the EU and Non-EU, Non-UK countries has increased steadily. After 2017/18 untill 2019/20 these pecentages remain unchanged. In 2020/21 non-UK staff increased by 1% while EU staff decreased by 1%.

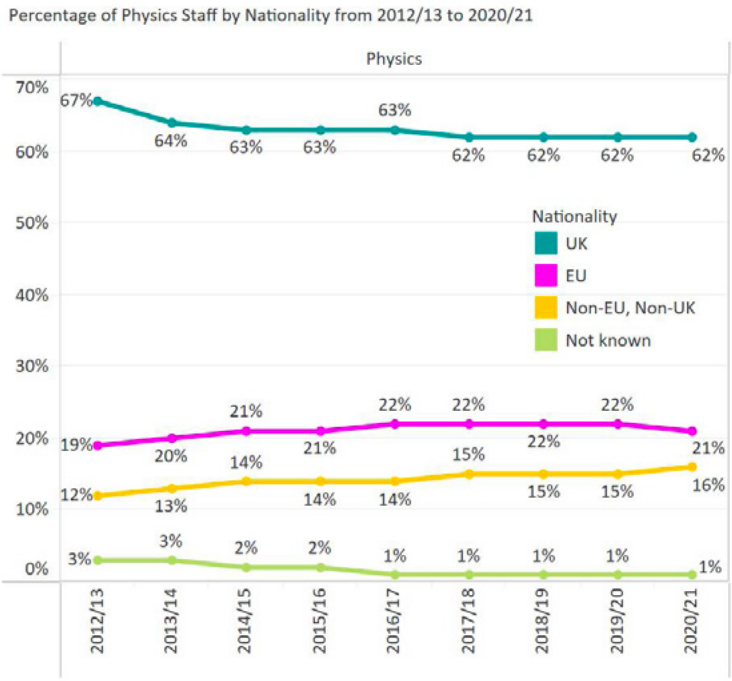

Figure 4: *HESA data showing the nationality of Physics staff over time.*

Table 5 shows how the proportion of staff for each nationality has changed over time for each subject. For Physics and all selected STEM subjects, the proportion of staff members who are from the UK has either decreased year on year or stayed the same.

The opposite trend is true for staff members in all selected STEM subjects from non-EU, non-UK countries where staff members from these nationalities increased or stayed the same each year. The proportion of EU staff members increased or stayed the same until 2018/19 with the only exception of Chemistry that decreased by 1% in 2018/19.

Then from 2018/19 to 2020/21 these percentages decreased for Physics and Chemistry by 1% while the other STEM subjects remained unchanged.

		Academic Year								
Nationality	Discipline	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
UK	Physics	3,945	4,110	4,330	4,385	4,440	4,505	4,680	4,630	4,645
	Biosciences	13,245	13,920	14,050	13,785	13,910	13,990	13,885	13,410	13,035
	Chemistry	3,685	3,900	3,850	3,840	3,865	3,935	3,990	3,800	3,635
	Electrical, electronic & computer engineering	3,330	3,425	3,470	3,460	3,390	3,380	3,420	3,440	3,305
	IT, systems sciences & computer software engineering	5,915	5,960	5,850	5,730	5,970	6,065	6,220	5,850	6,000
	Mathematics	3,140	3,205	3,195	3,260	3,275	3,305	3,320	3,325	3,310
EU	Physics	1,090	1,255	1,425	1,495	1,560	1,635	1,665	1,605	1,600
	Biosciences	2,775	3,155	3,450	3,635	3,745	3,860	3,870	3,870	3,735
	Chemistry	765	930	975	1,055	1,125	1,110	1,055	1,000	950
	Electrical, electronic & computer engineering	690	740	830	900	920	935	970	945	925
	IT, systems sciences & computer software engineering	1,215	1,375	1,445	1,560	1,655	1,890	2,010	1,980	2,050
	Mathematics	1,010	1,175	1,205	1,240	1,325	1,385	1,460	1,455	1,475
Non-EU, Non-UK	Physics	710	820	945	985	1,005	1,090	1,105	1,145	1,180
	Biosciences	1,755	1,950	2,020	2,035	2,085	2,215	2,345	2,390	2,435
	Chemistry	595	640	700	715	760	800	830	905	905
	Electrical, electronic & computer engineering	985	1,055	1,210	1,290	1,325	1,430	1,545	1,675	1,720
	IT, systems sciences & computer software engineering	1,085	1,195	1,230	1,290	1,375	1,565	1,770	1,930	2,185
	Mathematics	770	870	895	940	925	1,010	1,040	1,120	1,170
Not known	Physics	150	200	160	125	90	55	60	65	65
	Biosciences	395	410	350	240	165	115	150	150	140
	Chemistry	105	130	170	125	55	25	35	50	40
	Electrical, electronic & computer engineering	55	65	40	25	30	20	10	10	10
	IT, systems sciences & computer software engineering	165	135	85	55	80	75	70	75	65
	Mathematics	100	135	95	75	50	25	25	35	35

Table 5: *HESA data for staff by nationality from 2012/13 to 2020/21*

Nationality	Discipline	Academic Year								
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
UK	Physics	67%	64%	63%	63%	63%	62%	62%	62%	62%
	Biosciences	73%	72%	71%	70%	70%	69%	69%	68%	67%
	Chemistry	71%	70%	68%	67%	67%	67%	67%	66%	66%
	Electrical, electronic & computer engineering	66%	65%	62%	61%	60%	59%	58%	57%	55%
	IT, systems sciences & computer software engineering	71%	69%	68%	66%	66%	63%	62%	59%	58%
	Mathematics	63%	60%	59%	59%	59%	58%	57%	56%	55%
EU	Physics	19%	20%	21%	21%	22%	22%	22%	22%	21%
	Biosciences	15%	16%	17%	18%	19%	19%	19%	20%	19%
	Chemistry	15%	17%	17%	18%	19%	19%	18%	17%	17%
	Electrical, electronic & computer engineering	14%	14%	15%	16%	16%	16%	16%	16%	16%
	IT, systems sciences & computer software engineering	14%	16%	17%	18%	18%	20%	20%	20%	20%
	Mathematics	20%	22%	22%	22%	24%	24%	25%	25%	25%
Non-EU, Non-UK	Physics	12%	13%	14%	14%	14%	15%	15%	15%	16%
	Biosciences	10%	10%	10%	10%	10%	11%	12%	12%	13%
	Chemistry	12%	11%	12%	12%	13%	14%	14%	16%	16%
	Electrical, electronic & computer engineering	19%	20%	22%	23%	23%	25%	26%	28%	29%
	IT, systems sciences & computer software engineering	13%	14%	14%	15%	15%	16%	18%	20%	21%
	Mathematics	15%	16%	17%	17%	17%	18%	18%	19%	20%
Not known	Physics	3%	3%	2%	2%	1%	1%	1%	1%	1%
	Biosciences	2%	2%	2%	1%	1%	1%	1%	1%	1%
	Chemistry	2%	2%	3%	2%	1%	0%	1%	1%	1%
	Electrical, electronic & computer engineering	1%	1%	1%	0%	1%	0%	0%	0%	0%
	IT, systems sciences & computer software engineering	2%	2%	1%	1%	1%	1%	1%	1%	1%
	Mathematics	2%	2%	2%	1%	1%	0%	0%	1%	1%

Table 6: *HESA data by proportion of nationality for staff from 2012/13 to 2020/21.*

Table 7 shows the percentage change of Physics staff and staff in selected STEM subjects by nationality from 2012/13 to 2020/21. Over that period of time, Physics staff from the UK increased by 18%. Physics, in fact, saw the largest increase of staff from the UK for any selected STEM subject, with the next largest increase being for Mathematics which saw an 5% increase in staff numbers.

Across all selected STEM subjects looked at, staff members from EU countries saw larger percentage increases than staff from the UK. Physics saw the number of staff members from the EU increase by 47%. Chemistry saw the smallest increase in staff numbers from the EU (24%) and IT, systems sciences & computer software engineering saw the largest increase of 69%.

Staff members from non-EU, non-UK countries increased by 67% for Physics between 2012/13 and 2020/21, equating to 470 additional people. During the same time period, IT, systems sciences & computer software engineering again saw the largest increase in non-EU, non-UK staff members (102%). The subject which saw the smallest increase (39%) was Biosciences.

In 2019/20 and 2020/21 staff members from UK and EU decreased or stayed the same in all selected STEM subjects, except for IT, systems sciences & computer software engineering and Mathematic in 2020/21 and Electrical, electronic & computer engineering in 2019/20 for the UK.

The opposite is true for staff members from non-EU, non-UK countries where, in 2019/20 and 2020/21, there was an increase in every subject between 2% and 13%.

Nationality	Discipline	Academic Year									
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
UK	Physics	3,945	4%	5%	1%	1%	2%	4%	-1%	0%	18%
	Biosciences	13,245	5%	1%	-2%	1%	1%	-1%	-3%	-3%	-2%
	Chemistry	3,685	6%	-1%	0%	1%	2%	1%	-5%	-4%	-1%
	Electrical, electronic & computer engineering	3,330	3%	1%	0%	-2%	0%	1%	1%	-4%	-1%
	IT, systems sciences & computer software engineering	5,915	1%	-2%	-2%	4%	2%	3%	-6%	3%	1%
	Mathematics	3,140	2%	0%	2%	0%	1%	0%	0%	0%	5%
EU	Physics	1,090	15%	14%	5%	4%	5%	2%	-4%	0%	47%
	Biosciences	2,775	14%	9%	5%	3%	3%	0%	0%	-3%	35%
	Chemistry	765	21%	5%	8%	7%	-1%	-5%	-5%	-5%	24%
	Electrical, electronic & computer engineering	690	7%	13%	8%	2%	2%	4%	-3%	-2%	34%
	IT, systems sciences & computer software engineering	1,215	13%	5%	8%	6%	14%	6%	-1%	3%	69%
	Mathematics	1,010	16%	3%	3%	7%	5%	5%	0%	1%	46%
Non-EU, Non-UK	Physics	710	16%	15%	4%	3%	8%	2%	3%	3%	67%
	Biosciences	1,755	11%	3%	1%	2%	6%	6%	2%	2%	39%
	Chemistry	595	7%	9%	3%	6%	5%	4%	9%	0%	52%
	Electrical, electronic & computer engineering	985	7%	15%	7%	3%	8%	8%	8%	3%	75%
	IT, systems sciences & computer software engineering	1,085	10%	3%	5%	7%	14%	13%	9%	13%	102%
	Mathematics	770	13%	3%	5%	-2%	9%	3%	8%	5%	52%
Not known	Physics	150	35%	-21%	-22%	-29%	-37%	6%	8%	3%	-56%
	Biosciences	395	3%	-14%	-31%	-31%	-32%	33%	-2%	-5%	-64%
	Chemistry	105	22%	31%	-26%	-57%	-54%	38%	40%	-21%	-64%
	Electrical, electronic & computer engineering	55	16%	-37%	-38%	17%	-34%	-52%	0%	-16%	-86%
	IT, systems sciences & computer software engineering	165	-17%	-39%	-34%	43%	-7%	-7%	10%	-13%	-60%
	Mathematics	100	35%	-30%	-21%	-31%	-50%	7%	35%	1%	-62%

Table 7: *HESA data for the percentage change from the previous year in staff by nationality for 2012/13 to 2020/21.*

Ethnicity

Table 8 shows a detailed breakdown for selected STEM staff members by ethnicity in 2020/21. For all subjects, most members of staff are White. For Physics, the ethnicity with the second highest number of staff is Asian or Asian British – Indian. The ethnicity with the lowest number of staff members for Physics is Other Black background.

	2020/21											
	Asian or Asian British - Bangladeshi	Asian or Asian British - Indian	Asian or Asian British - Pakistani	Other Asian background	Black or Black British - African	Black or Black British - Caribbean	Other Black background	Chinese	Mixed	White	Other	Unknown
Physics	10	275	35	135	35	15	5	260	170	5,585	135	830
Biosciences	55	705	145	350	250	45	35	480	440	14,965	370	1,495
Chemistry	20	215	40	115	40	10	5	290	100	4,140	95	450
Electrical, electronic & computer engineering	50	295	130	275	105	15	5	645	120	3,515	260	540
IT, systems sciences & computer software engineering	70	395	210	345	225	40	15	670	235	6,680	390	1,040
Mathematics	10	155	20	135	50	5	5	285	135	4,395	130	665

Table 8: *Detailed ethnic breakdown of selected STEM subjects staff in 2020/21.*

Figure 5 shows the percentage of staff for each grouped ethnicity in 2020/21 for Physics compared to all other academic disciplines. The proportion of staff who are Black in Physics is less than in other academic disciplines, however, Physics sees a slightly higher proportion of Asian staff than in other academic disciplines.

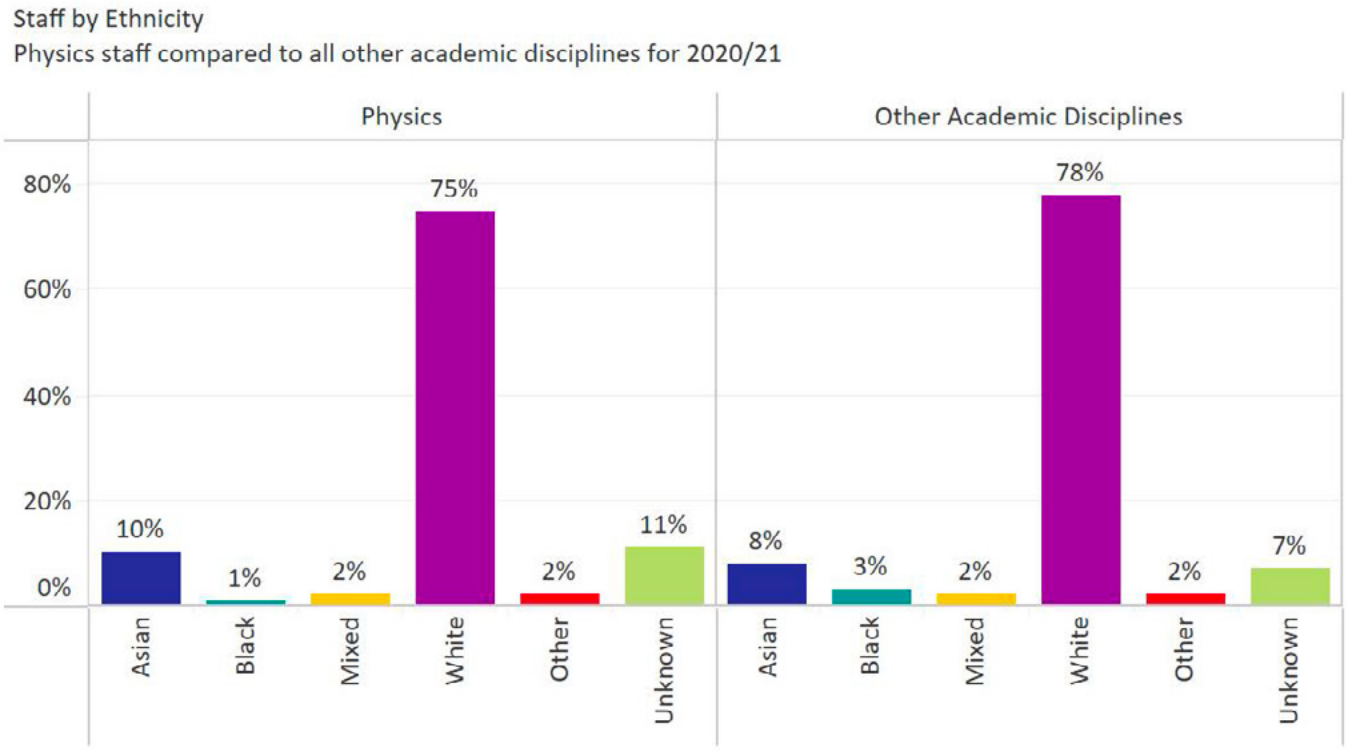

Figure 5: *HESA data for staff by ethnicity for 2020/21.*

Table 9 shows the total number of staff for each selected subject based on their ethnicity. Table 10 shows the proportion of staff across the different ethnicities for each selected subject excluding the unknown ethnicities values. The figures in the table are compared to the 2011 census[1]. From the 2011 census, approximately 3% of the population in England and Wales were Black. The census also identified 8% of the population as being Asian, and 86% as being White.

In 2020/21, between 1-3% of staff for selected STEM subjects were Black (for Physics, this figure was 1%). Comparing this proportion to the 2011 census, Black staff members are underrepresented in all selected STEM subjects except for IT, systems sciences & computer software engineering. Amongst all selected STEM subjects, representation of black ethnicities in members of staff did not change from 2012/13 to 2020/21, with the exception of Biosciences and IT, systems sciences & computer software engineering which increased by 1%.

For Physics, in 2020/21, 11% of staff were Asian, up from 8% in 2012/13. For other selected STEM subjects this figure varied from 10% for Biosciences to 26% for Electrical, electronic & computer engineering. Representation of Asian ethnicities among staff members in selected STEM subjects increased between 2% and 5% over the time period stated. The exception to this is Electrical, electronic & computer engineering where representation increased from 18% to 26%.

In 2012/13, 89% of Physics staff in higher education were White, this figure decreasing to 84% in 2020/21. These values are well aligned with the census data.

[1]*www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/ethnicity/articles/2011censusanalysisethnicityandreligionofthenonukbornpopulationinenglandandwales/2015-06-18*

Discipline	Ethnicity	Academic Year								
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Physics	Asian	415	470	540	535	560	635	680	700	720
	Black	30	35	30	30	35	45	40	55	55
	Mixed	80	90	115	135	130	150	170	170	170
	White	4,735	5,040	5,345	5,475	5,575	5,665	5,790	5,635	5,585
	Other	55	85	90	85	100	100	105	115	135
	Unknown	575	670	735	730	690	685	725	765	830
Biosciences	Asian	1,310	1,365	1,435	1,485	1,560	1,635	1,710	1,720	1,745
	Black	190	225	215	205	225	260	290	305	330
	Mixed	245	265	270	300	330	370	400	430	440
	White	14,900	15,755	16,165	16,035	16,115	16,165	16,000	15,455	14,965
	Other	205	255	275	265	300	325	355	375	370
	Unknown	1,310	1,575	1,505	1,420	1,375	1,425	1,500	1,530	1,495
Chemistry	Asian	425	470	495	515	540	605	620	690	680
	Black	50	45	55	50	60	60	60	50	55
	Mixed	50	50	60	65	70	85	95	100	100
	White	4,165	4,515	4,505	4,520	4,580	4,605	4,605	4,385	4,140
	Other	50	50	55	55	70	80	95	90	95
	Unknown	425	470	520	535	485	440	440	435	450
Electrical, electronic & computer engineering	Asian	850	905	1,035	1,115	1,170	1,245	1,360	1,445	1,400
	Black	75	80	100	115	100	120	135	135	125
	Mixed	60	65	75	75	80	90	100	115	120
	White	3,525	3,625	3,725	3,790	3,675	3,670	3,690	3,610	3,515
	Other	160	175	180	185	200	215	210	240	260
	Unknown	385	435	440	400	440	415	450	525	540
IT, systems sciences & computer software engineering	Asian	985	1,010	1,000	1,045	1,120	1,275	1,405	1,520	1,690
	Black	155	170	180	195	185	200	230	240	280
	Mixed	110	115	125	130	170	185	205	225	235
	White	6,475	6,595	6,515	6,440	6,690	6,930	7,065	6,660	6,680
	Other	140	195	220	215	230	285	345	365	390
	Unknown	510	580	565	615	690	715	815	825	1,040
Mathematics	Asian	375	440	450	475	465	505	520	585	605
	Black	35	40	50	50	50	50	65	55	60
	Mixed	60	65	80	95	100	115	110	130	135
	White	4,015	4,155	4,155	4,275	4,330	4,425	4,485	4,430	4,395
	Other	80	110	110	105	105	110	120	125	130
	Unknown	455	560	540	515	520	525	550	610	665

Table 9: *HESA data on staff ethnicity for 2012/13 to 2020/21.*

Discipline	Ethnicity	Academic Year								
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Physics	Asian	8%	8%	9%	9%	9%	10%	10%	10%	11%
	Black	1%	1%	0%	0%	1%	1%	1%	1%	1%
	Mixed	2%	2%	2%	2%	2%	2%	2%	3%	3%
	White	89%	88%	87%	87%	87%	86%	85%	84%	84%
	Other	1%	1%	1%	1%	2%	2%	2%	2%	2%
Biosciences	Asian	8%	8%	8%	8%	8%	9%	9%	9%	10%
	Black	1%	1%	1%	1%	1%	1%	2%	2%	2%
	Mixed	1%	1%	1%	2%	2%	2%	2%	2%	2%
	White	88%	88%	88%	88%	87%	86%	85%	85%	84%
	Other	1%	1%	1%	1%	2%	2%	2%	2%	2%
Chemistry	Asian	9%	9%	10%	10%	10%	11%	11%	13%	13%
	Black	1%	1%	1%	1%	1%	1%	1%	1%	1%
	Mixed	1%	1%	1%	1%	1%	2%	2%	2%	2%
	White	88%	88%	87%	87%	86%	85%	84%	82%	82%
	Other	1%	1%	1%	1%	1%	1%	2%	2%	2%
Electrical, electronic & computer engineering	Asian	18%	19%	20%	21%	22%	23%	25%	26%	26%
	Black	2%	2%	2%	2%	2%	2%	2%	2%	2%
	Mixed	1%	1%	1%	1%	1%	2%	2%	2%	2%
	White	75%	75%	73%	72%	70%	69%	67%	65%	65%
	Other	3%	4%	4%	4%	4%	4%	4%	4%	5%
IT, systems sciences & computer software engineering	Asian	13%	13%	12%	13%	13%	14%	15%	17%	18%
	Black	2%	2%	2%	2%	2%	2%	2%	3%	3%
	Mixed	1%	1%	2%	2%	2%	2%	2%	2%	3%
	White	82%	82%	81%	80%	80%	78%	76%	74%	72%
	Other	2%	2%	3%	3%	3%	3%	4%	4%	4%
Mathematics	Asian	8%	9%	9%	9%	9%	10%	10%	11%	11%
	Black	1%	1%	1%	1%	1%	1%	1%	1%	1%
	Mixed	1%	1%	2%	2%	2%	2%	2%	2%	3%
	White	88%	86%	86%	86%	86%	85%	85%	83%	83%
	Other	2%	2%	2%	2%	2%	2%	2%	2%	2%

Table 10: *HESA data by proportion staff ethnicity for 2012/13 to 2020/21.*

Table 11 shows the percentage change year on year in staff for each ethnicity for each selected STEM subject. The percentage the staff numbers differs by varies depending on year, subject and ethnicity, but there are some similarities across subject and year.

For Physics, the number of White members of staff in 2019/20 and 2020/21 decreased from the previous academic year by 3% and 1% respectively. However, for all other ethnicities, Physics staff see at least one year where the number of staff decreased from 2012/13 to 2020/21. Black staff members for Physics saw three years in which the number of staff members decreased by 16%, 6% and 1% respectively. No other ethnicity saw a decrease in Physics staff that was greater than 6%. In fact, no other ethnicity, for any other selected STEM subject saw a greater decrease in the percentage of staff members than Black Physics staff members did in 2014/15 from the previous academic year (16%). The total number of staff for all ethnic groups, with the exception of White staff members, is low. The large fluctuations in the year-on-year percentage changes in staff numbers can be attributed to this.

Like in Physics, all other STEM subjects saw a decrease in the proportion of White members of staff in 2019/20 and 2020/21 with the only exception in 2020/21 for IT, systems sciences & computer software engineering that remained unchanged.

Discipline	Ethnicity	Academic Year									
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
Physics	Asian	415	12%	15%	-1%	5%	13%	7%	3%	3%	73%
	Black	30	11%	-16%	8%	16%	24%	-6%	30%	-1%	76%
	Mixed	80	10%	33%	16%	-4%	17%	11%	1%	0%	112%
	White	4,735	6%	6%	2%	2%	2%	2%	-3%	-1%	18%
	Other	55	51%	10%	-6%	19%	-1%	6%	8%	15%	143%
	Unknown	575	17%	9%	0%	-6%	0%	6%	6%	8%	44%
Biosciences	Asian	1,310	4%	5%	3%	5%	5%	5%	1%	1%	33%
	Black	190	18%	-3%	-5%	8%	16%	12%	5%	9%	74%
	Mixed	245	6%	3%	10%	11%	12%	8%	8%	2%	79%
	White	14,900	6%	3%	-1%	1%	0%	-1%	-3%	-3%	0%
	Other	205	27%	6%	-4%	13%	8%	10%	6%	-1%	83%
	Unknown	1,310	20%	-4%	-6%	-3%	4%	5%	2%	-2%	14%
Chemistry	Asian	425	11%	5%	4%	5%	12%	2%	11%	-1%	61%
	Black	50	-9%	20%	-9%	19%	-1%	1%	-11%	9%	13%
	Mixed	50	3%	23%	10%	7%	17%	14%	7%	1%	114%
	White	4,165	8%	0%	0%	1%	1%	0%	-5%	-6%	-1%
	Other	50	4%	9%	-2%	33%	10%	19%	-3%	6%	98%
	Unknown	425	11%	12%	2%	-10%	-8%	0%	-1%	3%	6%
Electrical, electronic & computer engineering	Asian	850	6%	14%	7%	5%	6%	9%	6%	-3%	64%
	Black	75	4%	22%	16%	-10%	18%	10%	1%	-8%	60%
	Mixed	60	6%	13%	1%	3%	16%	13%	14%	4%	95%
	White	3,525	3%	3%	2%	-3%	0%	1%	-2%	-3%	0%
	Other	160	10%	4%	3%	6%	9%	-2%	13%	9%	65%
	Unknown	385	12%	1%	-9%	10%	-5%	8%	16%	3%	40%
IT, systems sciences & computer software engineering	Asian	985	3%	-1%	5%	7%	14%	10%	8%	11%	72%
	Black	155	12%	5%	8%	-5%	8%	15%	6%	15%	80%
	Mixed	110	1%	10%	5%	29%	11%	10%	9%	4%	107%
	White	6,475	2%	-1%	-1%	4%	4%	2%	-6%	0%	3%
	Other	140	36%	14%	-3%	7%	25%	21%	5%	7%	174%
	Unknown	510	14%	-3%	8%	13%	3%	15%	1%	26%	103%
Mathematics	Asian	375	18%	2%	5%	-1%	8%	3%	12%	4%	62%
	Black	35	14%	16%	7%	-1%	-7%	31%	-9%	7%	66%
	Mixed	60	13%	24%	15%	6%	12%	-5%	18%	5%	130%
	White	4,015	3%	0%	3%	1%	2%	1%	-1%	-1%	9%
	Other	80	40%	-1%	-6%	1%	6%	6%	6%	1%	59%
	Unknown	455	24%	-4%	-4%	1%	1%	5%	12%	9%	46%

Table 11: *HESA data for the percentage change from the previous year in staff by ethnicity for 2012/13 to 2020/21.*

Age Group

Figure 6 shows that the age of Physics staff is skewed to those in the age groups 26 to 30 years and 31 to 35 years 16% and 17% respectively. This skewing to younger age ranges is not observed in other academic disciplines. The age range with the lowest proportion of Physics staff is 66 years and over which makes up only 3% of the staff population. This is also observed in all other academic disciplines.

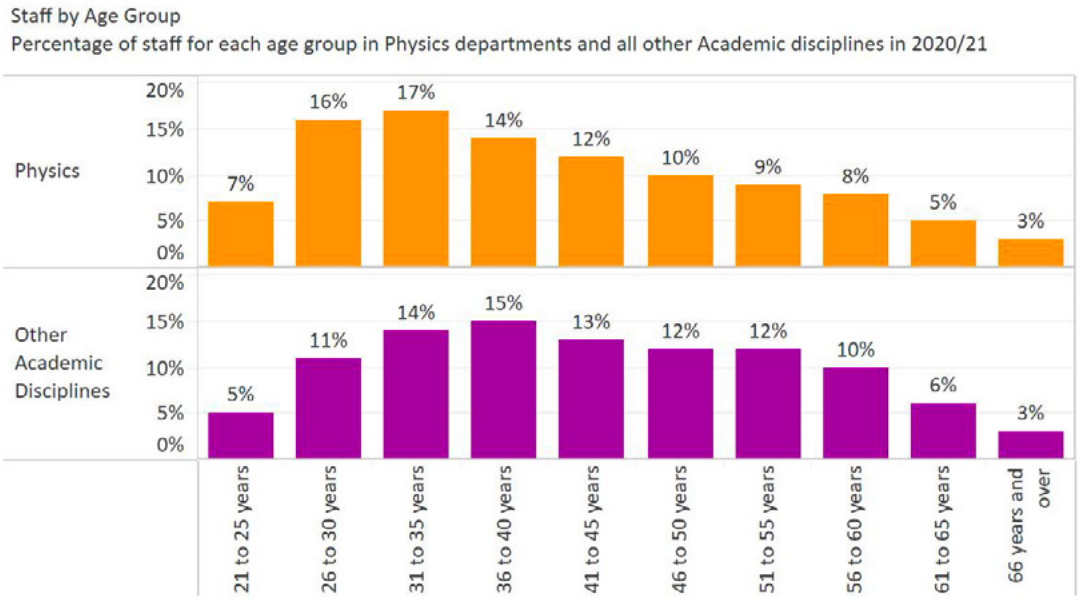

Figure 6: *HESA staff data by age group for Physics staff and all other disciplines*

Figure 7 shows the total number of Physics staff by age group for each year since 2012/13. The total number of staff in each age group has increased in the time period from 2012/13 to 2020/21. The largest change is seen in those aged 21 to 25 years old with more than double of the members in 2012/13. The number of people in this group has consistently increased year on year or mantaine the previous year number of staff.

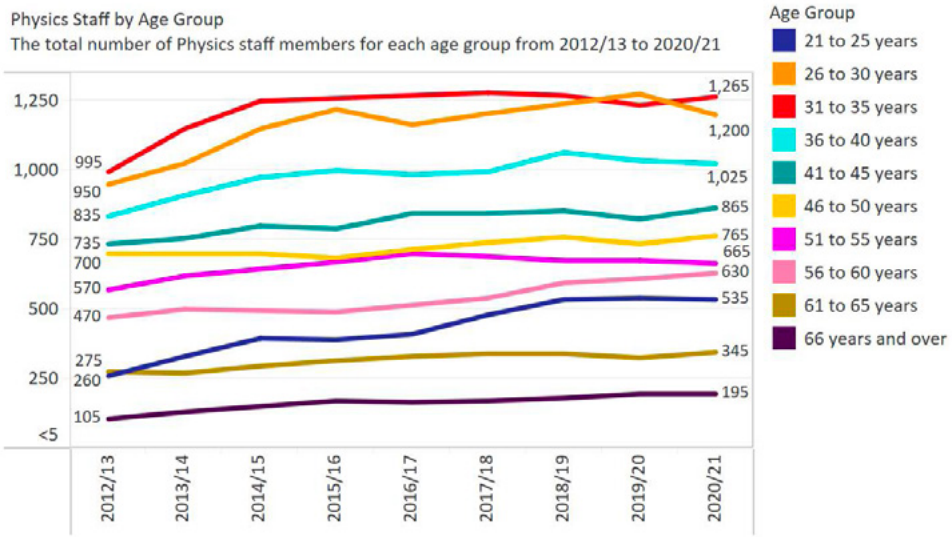

Figure 7: *HESA staff data for Physics staff for all age groups over time*

Figure 8 shows the breakdown for Physics staff members in 2020/21 by gender for each age group. The age groups with the most female staff members are 26 to 30, 31 to 35 and 36 to 40 years old, each which represents 4% of Physics staff. The age group with the most male staff members for Physics, representing 13% of Physics staff, is 31 to 35 years old.

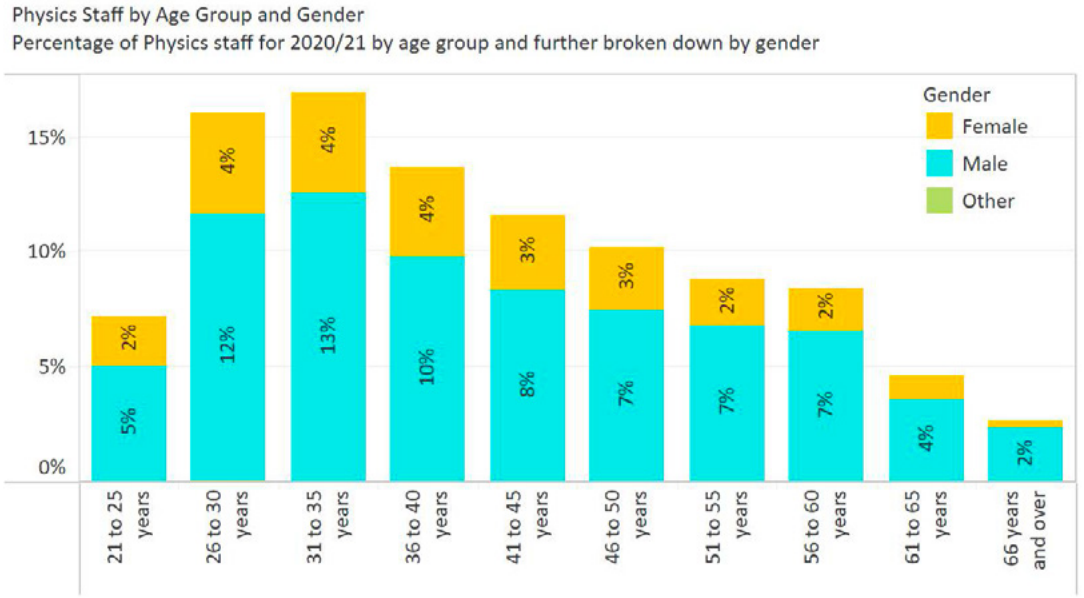

Figure 8: *HESA data for Physics staff members in 2020/21 by age group and gender.*

Across age groups, female staff comprise of between 22% and 30%. The exception to this is the age group 66 years and over, where the proportion of female staff is 11%.

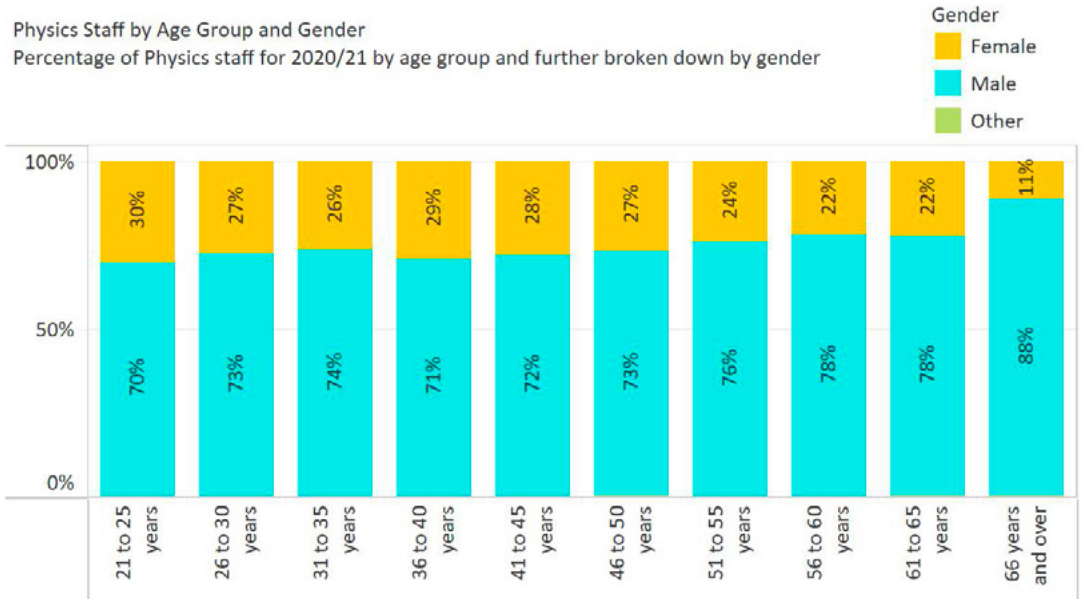

Figure 9: *HESA data for all Physics staff members in 2020/21 for proportion of each age group by gender.*

Salary

Different salary bands for Physics staff in 2020/21 are shown in **Figure 10.** The salary band with the highest percentage of staff in is £30k to £35k with 16% of staff being in this salary band. This salary band has double of staff than the highest 6 salary bands combined. A total of 11% of Physics staff earn more than £70k (top 7 bands combined).

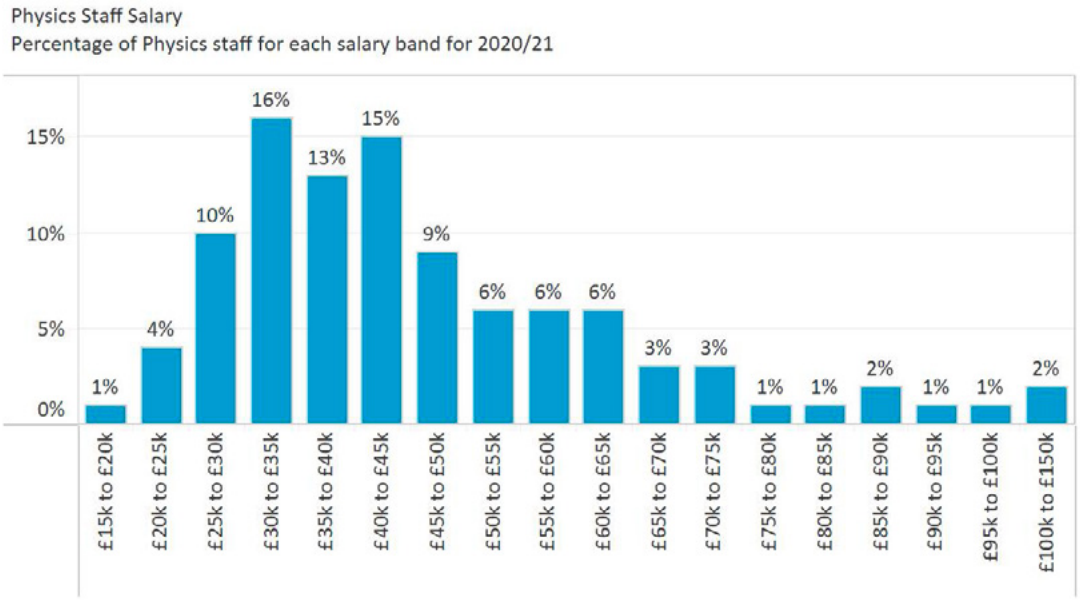

Figure 10: *HESA data for Physics staff salaries in 2020/21*

Female Physics staff are more likely to be in lower salary bands than male staff. In the £15k to £20k salary band and £20k to £25k salary band, the proportions of females are 49% and 55% respectively. The proportion of females decreases as salary band increases. In the top two salary bands, only 6% and 9% of staff are female, respectively.

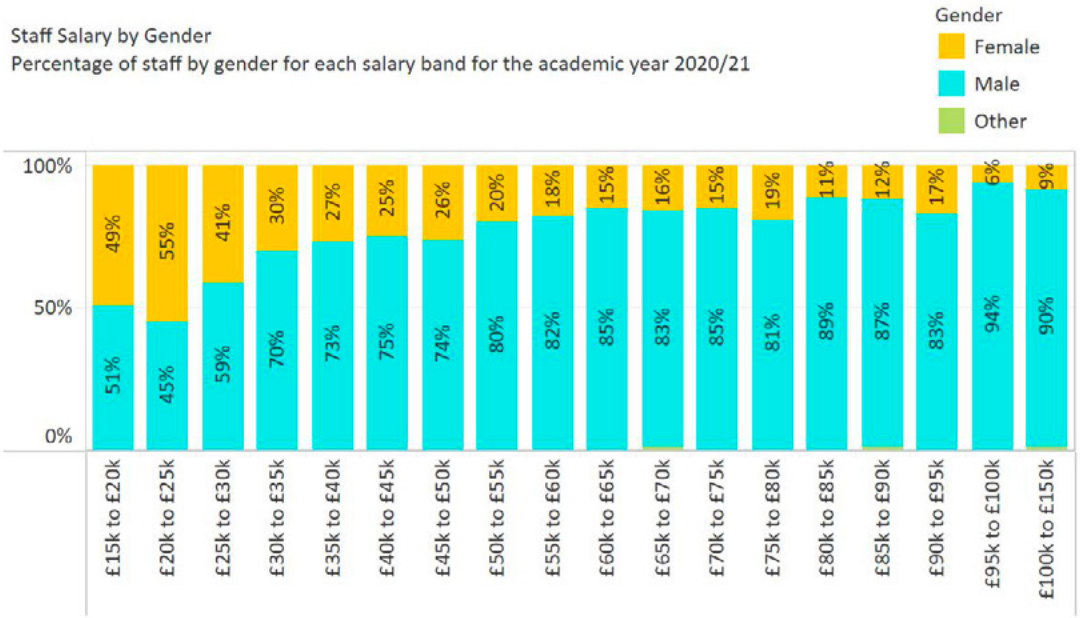

Figure 11: *HESA data for Physics staff salaries by gender for 2020/21*

Figure 12 shows the breakdown of the total number of staff in each salary band by ethnicity for Physics staff in the academic year 2020/21. The higher salary bands see the fewest non-White staff members, proportionally. For all the salary bands less than £55k the percentage of White staff is between 61% and 78%. However, for all the salary bands over £55k the proportion of White staff is more than 80%.

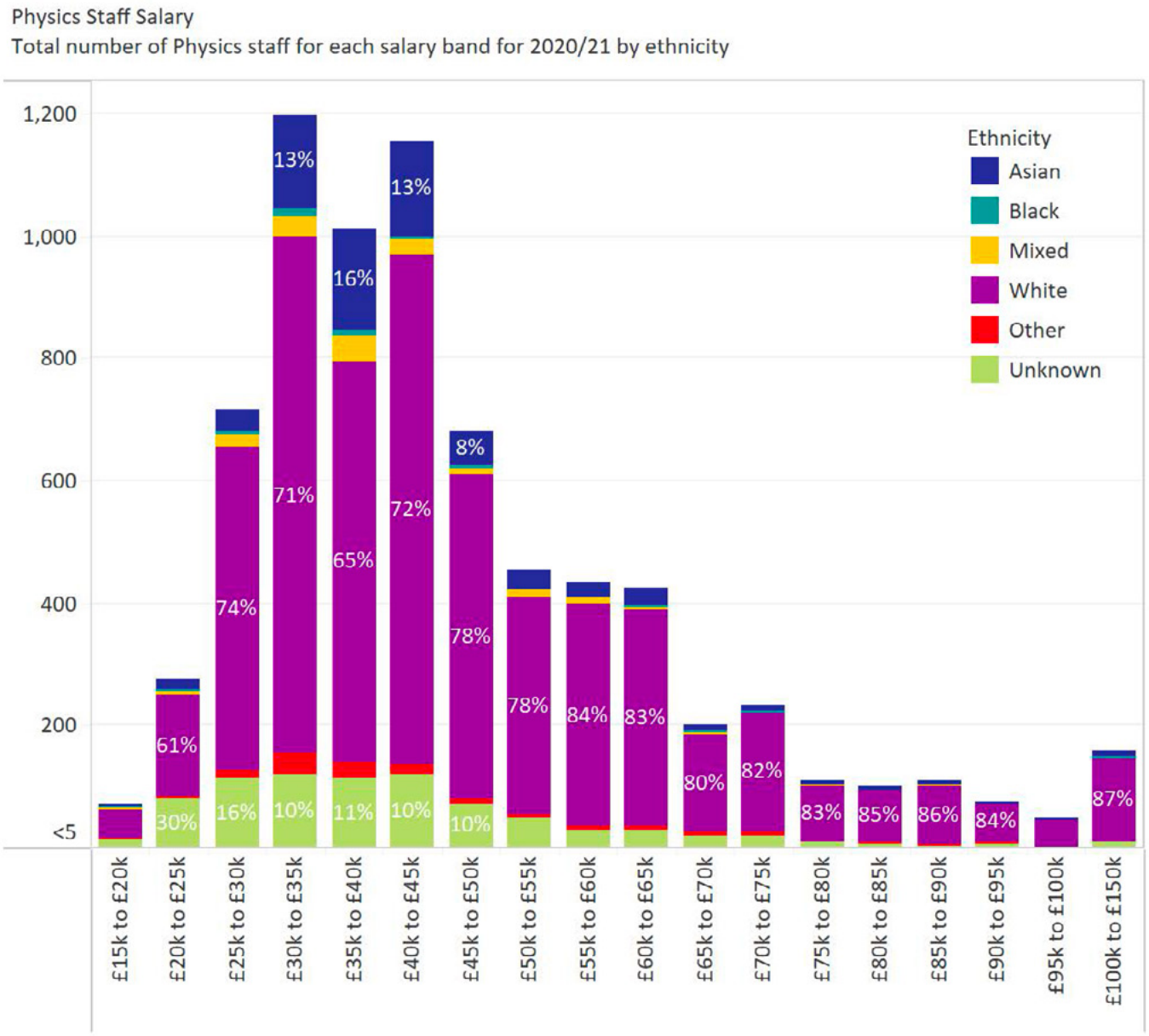

Figure 12: *HESA data for Physics staff showing salary bands by ethnicity for 2020/21.*

Academic and Non-Academic Staff

Presented in this section is an analysis comparing members of staff with academic contracts with those members of staff who have non-academic contracts. Staff with academic contracts are those who are involved in researching or teaching, whereas those members of staff on a non-academic contract are those with more administrative, leadership or technical roles.

For Physics, there are 130 more non-academic staff in 2020/21 than there were in 2012/13. Over the same time period, the number of academic staff increased by 1,415. In 2012/13, Physics and Mathematics had a similar number of academic staff but by 2020/21 the number of academic staff for Physics is greater than in Mathematics by 475.

Discipline	Academic Employment Function	Academic Year								
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Physics	Academic Contract	4,275	4,690	5,070	5,185	5,175	5,385	5,550	5,595	5,690
	Non-Academic Contract	1,125	1,180	1,255	1,295	1,385	1,345	1,390	1,260	1,255
	Unknown	495	515	525	510	535	555	570	590	545
Biosciences	Academic Contract	12,240	13,225	13,740	13,645	13,965	14,405	14,480	14,800	14,645
	Non-Academic Contract	4,150	4,390	4,335	4,375	4,250	4,165	4,180	3,570	3,355
	Unknown	1,775	1,820	1,790	1,680	1,690	1,605	1,590	1,445	1,345
Chemistry	Academic Contract	3,755	4,075	4,160	4,225	4,310	4,370	4,395	4,390	4,240
	Non-Academic Contract	940	1,040	1,055	1,050	1,010	1,005	1,025	915	870
	Unknown	460	480	480	465	480	495	490	450	415
Electrical, electronic & computer engineering	Academic Contract	3,840	4,060	4,330	4,440	4,380	4,560	4,670	4,870	4,870
	Non-Academic Contract	765	775	785	790	860	805	860	790	720
	Unknown	455	445	445	450	420	390	420	410	375
IT, systems sciences & computer software engineering	Academic Contract	6,410	6,610	6,655	6,695	6,875	7,500	7,930	8,095	8,605
	Non-Academic Contract	1,155	1,240	1,185	1,150	1,330	1,250	1,260	1,030	1,065
	Unknown	815	815	765	795	880	840	875	710	635
Mathematics	Academic Contract	4,270	4,585	4,545	4,655	4,690	4,880	4,980	5,145	5,215
	Non-Academic Contract	335	370	400	410	440	380	400	360	390
	Unknown	415	430	440	455	450	460	465	430	385

Table 12: *HESA data for staff by academic and non-academic contracts from 2012/13 to 2020/21.*

Between 2012/13 and 2020/21, Physics academic staff increased by 33%. Across all subjects considered, the number of academic staff increased over the years analysed. Over the same time, the number of non-academic staff increased in Physics (12%) and Mathematics (17%) and decreased for all the other subjects. All the non-academic staff have seen a decrease in 2019/20 from the previous academic year between 8% and 18%. In 2020/21 the number of non-academic staff in Physics remained unchanged and only IT, systems sciences & computer software engineering and Mathematics increased by 3% and 8% respectively.

Discipline	Academic Employment Function	Academic Year									
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
Physics	Academic Contract	4,275	10%	8%	2%	0%	4%	3%	1%	2%	33%
	Non-Academic Contract	1,125	5%	6%	3%	7%	-3%	4%	-9%	0%	12%
	Unknown	495	4%	2%	-3%	5%	4%	3%	3%	-7%	10%
Biosciences	Academic Contract	12,240	8%	4%	-1%	2%	3%	1%	2%	-1%	20%
	Non-Academic Contract	4,150	6%	-1%	1%	-3%	-2%	0%	-15%	-6%	-19%
	Unknown	1,775	2%	-1%	-6%	1%	-5%	-1%	-9%	-7%	-24%
Chemistry	Academic Contract	3,755	9%	2%	2%	2%	1%	1%	0%	-3%	13%
	Non-Academic Contract	940	10%	1%	0%	-3%	0%	2%	-11%	-4%	-7%
	Unknown	460	4%	0%	-3%	3%	3%	-1%	-8%	-8%	-10%
Electrical, electronic & computer engineering	Academic Contract	3,840	6%	7%	3%	-1%	4%	2%	4%	0%	27%
	Non-Academic Contract	765	1%	1%	1%	9%	-6%	6%	-8%	-9%	-6%
	Unknown	455	-1%	-1%	1%	-6%	-7%	7%	-2%	-8%	-17%
IT, systems sciences & computer software engineering	Academic Contract	6,410	3%	1%	1%	3%	9%	6%	2%	6%	34%
	Non-Academic Contract	1,155	7%	-4%	-3%	16%	-6%	1%	-18%	3%	-8%
	Unknown	815	0%	-6%	4%	10%	-4%	4%	-19%	-10%	-22%
Mathematics	Academic Contract	4,270	7%	-1%	2%	1%	4%	2%	3%	1%	22%
	Non-Academic Contract	335	10%	9%	2%	8%	-13%	5%	-10%	8%	17%
	Unknown	415	3%	3%	3%	-1%	3%	1%	-7%	-10%	-7%

Table 13: *HESA data for the percentage change from the previous year in staff by academic and non-academic contracts for 2012/13 to 2020/21.*

Gender

Excluding staff with unknown gender, **Figure 13** shows that for both academic and non-academic contracts, Physics staff are predominantly male, with 79% and 71% respectively. In contrast to all other academic disciplines where 52% of academic staff are male and non-academic staff being 43% male on average. If this is compared to Figure 1 (page 7) where 55% of staff in all other academic disciplines were female, females are underrepresented in academic and non-academic staff in physics.

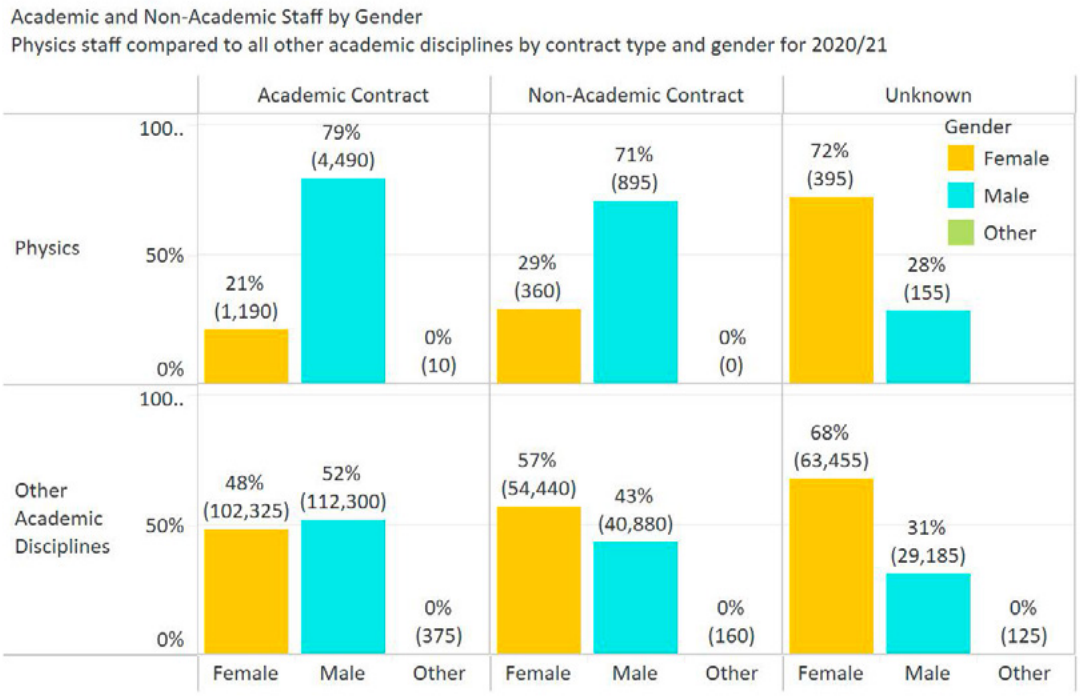

Figure 13: *HESA data for staff for 2020/21 by gender and academic and non-academic contracts.*

Since 2012/13, the proportion of both academic and non-academic staff in Physics departments that are female has increased. The proportion of non-academic staff in physics who are female has increased more than the proportion of females in academic positions.

Table 14 shows that from 2012/13 to 2020/21, the number of female academic staff for Physics increased by 445, while during the same time period, the number of male academic staff for Physics increased by 965. For non-academic Physics staff, an increase of 145 was seen for female while male staff decreased by 15 members.

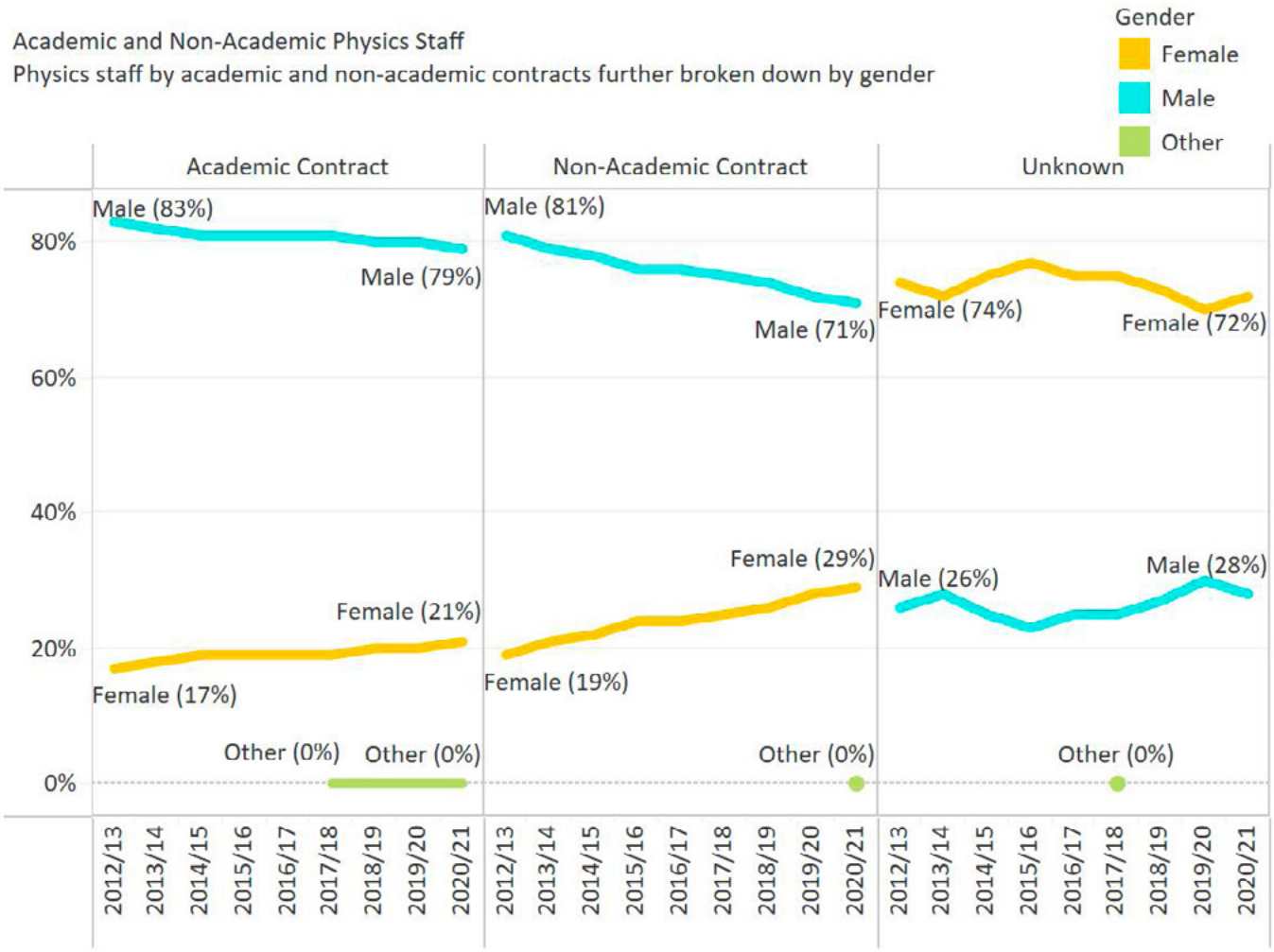

Figure 14: *HESA data for Physics staff by gender and academic or non-academic contracts over time.*

Discipline	Academic Employment Function	Gender	Academic Year								
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Physics	Academic Contract	Female	745	830	950	960	960	1,025	1,090	1,135	1,190
		Male	3,525	3,860	4,120	4,225	4,210	4,360	4,455	4,450	4,490
		Other						5	5	10	10
	Non-Academic Contract	Female	215	245	275	310	330	340	365	350	360
		Male	910	935	980	990	1,050	1,005	1,030	910	895
		Other									<5
	Unknown	Female	365	375	395	390	400	415	420	415	395
		Male	130	145	130	115	130	140	150	175	155
		Other						<5			
Biosciences	Academic Contract	Female	5,345	5,810	6,095	6,095	6,385	6,670	6,680	6,910	6,905
		Male	6,895	7,420	7,645	7,550	7,580	7,735	7,795	7,885	7,720
		Other						<5	5	5	15
	Non-Academic Contract	Female	2,365	2,535	2,525	2,570	2,495	2,465	2,480	2,130	2,005
		Male	1,780	1,855	1,810	1,805	1,750	1,700	1,700	1,440	1,350
		Other						<5	<5	<5	<5
	Unknown	Female	1,365	1,400	1,385	1,315	1,280	1,215	1,200	1,090	1,005
		Male	410	420	410	365	410	390	390	355	340
		Other									<5
Chemistry	Academic Contract	Female	1,015	1,125	1,125	1,175	1,245	1,250	1,280	1,315	1,290
		Male	2,740	2,950	3,035	3,050	3,065	3,120	3,115	3,075	2,945
		Other								5	5
	Non-Academic Contract	Female	345	405	420	420	410	430	440	390	355
		Male	595	635	630	630	600	580	585	525	515
		Other						<5	<5	<5	<5
	Unknown	Female	350	365	365	345	360	370	370	330	300
		Male	110	115	115	120	120	125	120	120	110
		Other									<5
Electrical, electronic & computer engineering	Academic Contract	Female	530	580	620	670	640	695	745	820	785
		Male	3,310	3,480	3,710	3,770	3,740	3,870	3,925	4,045	4,080
		Other							<5	5	5
	Non-Academic Contract	Female	160	175	190	200	235	235	265	270	245
		Male	605	600	595	590	625	570	595	515	470
		Other								<5	<5
	Unknown	Female	375	365	370	375	340	300	330	320	300
		Male	75	80	75	75	80	90	85	90	75
IT, systems sciences & computer software engineering	Academic Contract	Female	1,380	1,465	1,480	1,460	1,530	1,675	1,790	1,870	2,030
		Male	5,030	5,145	5,180	5,235	5,345	5,820	6,140	6,200	6,555
		Other						5	5	25	20
	Non-Academic Contract	Female	400	440	425	420	495	450	460	380	385
		Male	755	800	760	730	835	800	795	645	675
		Other							<5	5	5
	Unknown	Female	645	650	640	645	695	645	650	525	465
		Male	170	165	125	150	185	195	225	180	170
		Other						<5	<5		
Mathematics	Academic Contract	Female	995	1,050	1,045	1,065	1,095	1,110	1,110	1,215	1,270
		Male	3,275	3,535	3,500	3,590	3,590	3,775	3,865	3,920	3,935
		Other						<5	<5	10	10
	Non-Academic Contract	Female	165	185	200	210	220	210	230	205	215
		Male	170	185	200	200	220	170	170	155	175
		Other						<5	<5	<5	<5
	Unknown	Female	355	360	370	385	375	390	390	355	330
		Male	60	70	70	70	75	75	75	75	60
		Other							<5	<5	<5

Table 14: *HESA data for academic and non-academic selected STEM subjects' staff by gender for 2012/13 to 2020/21. (<5 represent 1 or 2 staff. Blank cells represent no staff at all.)*

From the table below, the number of female academic and non-academic Physics staff saw an increase of 60% and 68%, respectively. No other selected STEM subjects, including male staff members, had a greater increase. From 2012/13 to 2020/21 the number of male academic staff for Physics increased by 27%, the greatest increase for male academic staff for any subject given in the table, with the only exception of IT, systems sciences & computer software engineering that increased by 30%. The number of male non-academic staff for Physics decreased by 2%.

Non-academic male staff decreased for all other selected STEM subjects between 11% and 24%- with the only exception of Mathematics, which increased by 3%. These negative trends of non-academic staff members are mainly due to the two most recent years. The academic year 2019/20 sees the number of non-academic male and female staff in all the subjects selected decrease between 4% and 19%, with only one exception of female staff in Electrical, electronic & computer engineering which increased by 4%. In 2020/21 the number of non-academic staff in Physics, IT, systems sciences & computer software engineering and Mathematics have partially recovered from the down trend of the previous year while Biosciences, Chemistry and Electrical, electronic & computer engineering female and male staff have all decreased between 2% and 10%.

			Academic Year									
Discipline	Academic Employment Function	Gender	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
Physics	Academic Contract	Female	745	11%	14%	1%	0%	6%	6%	4%	5%	60%
		Male	3,525	9%	7%	2%	0%	3%	2%	0%	1%	27%
	Non-Academic Contract	Female	215	15%	12%	12%	8%	2%	8%	-4%	3%	68%
		Male	910	3%	5%	1%	6%	-4%	2%	-11%	-2%	-2%
	Unknown	Female	365	1%	6%	-1%	2%	3%	2%	-1%	-5%	7%
		Male	130	11%	-9%	-10%	12%	6%	8%	15%	-12%	19%
Biosciences	Academic Contract	Female	5,345	9%	5%	0%	5%	4%	0%	3%	0%	29%
		Male	6,895	8%	3%	-1%	0%	2%	1%	1%	-2%	12%
	Non-Academic Contract	Female	2,365	7%	-1%	2%	-3%	-1%	1%	-14%	-6%	-15%
		Male	1,780	4%	-2%	0%	-3%	-3%	0%	-15%	-6%	-24%
	Unknown	Female	1,365	3%	-1%	-5%	-3%	-5%	-1%	-9%	-8%	-26%
		Male	410	1%	-2%	-10%	12%	-5%	0%	-9%	-5%	-18%
Chemistry	Academic Contract	Female	1,015	11%	0%	4%	6%	1%	2%	3%	-2%	27%
		Male	2,740	8%	3%	1%	1%	2%	0%	-1%	-4%	7%
	Non-Academic Contract	Female	345	16%	5%	0%	-2%	4%	2%	-12%	-8%	3%
		Male	595	7%	-1%	0%	-4%	-4%	2%	-11%	-2%	-13%
	Unknown	Female	350	4%	0%	-5%	5%	2%	0%	-11%	-9%	-14%
		Male	110	4%	-1%	3%	-1%	5%	-4%	-1%	-6%	0%
Electrical, electronic & computer engineering	Academic Contract	Female	530	10%	6%	8%	-4%	8%	8%	10%	-4%	49%
		Male	3,310	5%	7%	2%	-1%	3%	1%	3%	1%	23%
	Non-Academic Contract	Female	160	9%	7%	5%	19%	-1%	12%	4%	-10%	52%
		Male	605	-1%	-1%	-1%	6%	-8%	4%	-13%	-9%	-22%
	Unknown	Female	375	-3%	1%	1%	-9%	-11%	10%	-4%	-6%	-21%
		Male	75	6%	-7%	3%	7%	12%	-5%	5%	-16%	1%
IT, systems sciences & computer software engineering	Academic Contract	Female	1,380	6%	1%	-1%	5%	9%	7%	5%	9%	47%
		Male	5,030	2%	1%	1%	2%	9%	5%	1%	6%	30%
	Non-Academic Contract	Female	400	11%	-4%	-1%	18%	-8%	2%	-18%	2%	-3%
		Male	755	6%	-5%	-4%	15%	-4%	0%	-19%	4%	-11%
	Unknown	Female	645	0%	-2%	1%	8%	-7%	1%	-19%	-12%	-28%
		Male	170	-1%	-24%	18%	22%	6%	16%	-19%	-7%	-1%
Mathematics	Academic Contract	Female	995	5%	0%	2%	3%	1%	0%	9%	5%	28%
		Male	3,275	8%	-1%	2%	0%	5%	2%	1%	0%	20%
	Non-Academic Contract	Female	165	10%	10%	4%	5%	-4%	9%	-10%	5%	30%
		Male	170	11%	8%	0%	10%	-23%	1%	-10%	12%	3%
	Unknown	Female	355	2%	2%	4%	-2%	4%	0%	-8%	-8%	-7%
		Male	60	10%	4%	0%	3%	1%	1%	-2%	-21%	-7%

Table 15: *HESA data for the percentage change from the previous year by staff in academic and non-academic contracts by gender for 2012/13 to 2020/21.*

Nationality

Figure 15 shows the percentage of academic and non-academic staff from the UK, EU and Non-EU, Non-UK countries for Physics compared to all other academic disciplines. For non-academic contracts, 86% of Physics staff, and 89% for all other academic disciplines, identified as being from the UK. For academic staff, these percentages drop to 55% for Physics and to 67% for all other academic disciplines. For those staff members from outside of the UK, for both academic and non-academic contracts, and for Physics and all other disciplines, there are more staff from the EU than from elsewhere in the world.

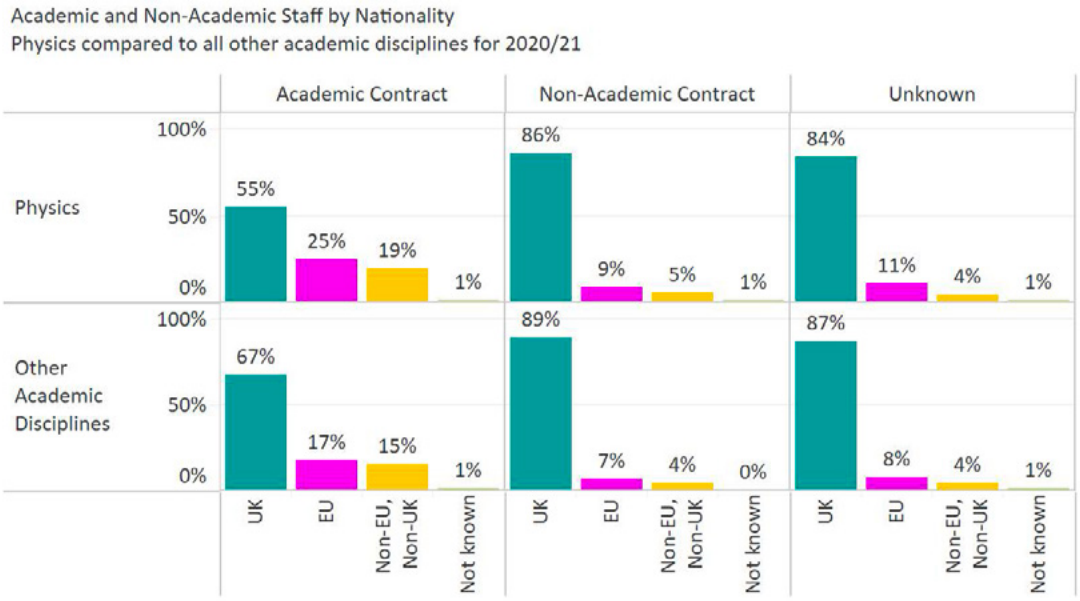

Figure 15: *HESA data for academic and non-academic contracts for 2020/21.*

Below, **Table 16** compares the total staff numbers for both academic and non-academic contracts across different subjects for 2012/13 and 2020/21. Excluding the staff with unknown nationality, the number of academic staff for each nationality increased from 2012/13 to 2020/21. However, the same cannot be said for non-academic contracts as there were several examples where the total number decreased. Members of non-academic staff from the UK decreased in all subjects with the exception of Physics and Mathematics. The other two examples of this are members of staff from non-EU, non-UK countries for Biosciences and Chemistry.

Nationality	Discipline	Academic Employment Function	Academic Year								
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
UK	Physics	Academic Contract	2,530	2,635	2,775	2,815	2,790	2,875	2,990	3,050	3,115
		Non-Academic Contract	990	1,040	1,110	1,140	1,195	1,165	1,195	1,080	1,075
		Unknown	425	435	440	430	450	465	495	505	455
	Biosciences	Academic Contract	8,160	8,610	8,790	8,635	8,880	9,070	9,020	9,210	9,085
		Non-Academic Contract	3,550	3,745	3,700	3,680	3,555	3,500	3,480	2,960	2,780
		Unknown	1,535	1,570	1,560	1,470	1,470	1,425	1,380	1,245	1,170
	Chemistry	Academic Contract	2,445	2,560	2,515	2,520	2,555	2,615	2,665	2,630	2,545
		Non-Academic Contract	830	910	910	910	875	880	900	780	735
		Unknown	410	425	425	415	435	440	425	390	355
	Electrical, electronic & computer engineering	Academic Contract	2,230	2,335	2,375	2,365	2,300	2,345	2,315	2,385	2,350
		Non-Academic Contract	695	690	695	690	710	680	730	685	620
		Unknown	400	395	400	400	380	350	375	365	335
	IT, systems sciences & computer software engineering	Academic Contract	4,155	4,130	4,115	4,010	4,035	4,255	4,425	4,395	4,590
		Non-Academic Contract	1,030	1,105	1,040	1,010	1,150	1,070	1,065	855	875
		Unknown	735	725	700	715	785	735	735	595	540
	Mathematics	Academic Contract	2,490	2,505	2,460	2,505	2,505	2,575	2,575	2,645	2,655
		Non-Academic Contract	285	325	350	355	365	320	340	305	315
		Unknown	365	370	385	400	405	410	405	375	340
EU	Physics	Academic Contract	995	1,155	1,320	1,370	1,405	1,470	1,500	1,435	1,430
		Non-Academic Contract	60	65	70	90	110	115	120	110	110
		Unknown	35	35	35	40	45	50	45	55	60
	Biosciences	Academic Contract	2,360	2,700	2,980	3,090	3,175	3,315	3,290	3,335	3,250
		Non-Academic Contract	310	345	365	445	445	435	455	415	380
		Unknown	100	110	110	105	125	115	125	115	105
	Chemistry	Academic Contract	705	840	880	950	1,005	990	925	870	815
		Non-Academic Contract	45	60	65	75	85	80	90	80	90
		Unknown	20	25	30	30	35	40	45	45	45
	Electrical, electronic & computer engineering	Academic Contract	635	685	775	830	835	860	885	875	855
		Non-Academic Contract	30	35	40	45	60	55	60	45	45
		Unknown	25	20	20	30	25	20	25	25	25
	IT, systems sciences & computer software engineering	Academic Contract	1,115	1,255	1,330	1,435	1,505	1,725	1,800	1,820	1,905
		Non-Academic Contract	55	75	80	75	95	100	120	85	85
		Unknown	45	50	35	45	60	60	90	75	60
	Mathematics	Academic Contract	955	1,115	1,145	1,180	1,255	1,310	1,390	1,390	1,400
		Non-Academic Contract	30	30	30	35	40	40	35	35	45
		Unknown	30	30	30	30	30	30	30	30	30
Non-EU, Non-UK	Physics	Academic Contract	655	760	870	915	925	1,000	1,015	1,060	1,100
		Non-Academic Contract	40	45	50	50	60	60	70	60	60
		Unknown	15	20	25	20	20	30	20	20	25
	Biosciences	Academic Contract	1,480	1,650	1,740	1,765	1,810	1,950	2,070	2,155	2,205
		Non-Academic Contract	220	235	220	215	220	215	220	175	175
		Unknown	60	65	60	60	55	45	60	55	55
	Chemistry	Academic Contract	540	590	635	665	705	750	785	855	855
		Non-Academic Contract	45	40	50	45	45	35	35	40	35
		Unknown	15	10	10	10	10	10	15	10	15
	Electrical, electronic & computer engineering	Academic Contract	930	995	1,150	1,225	1,230	1,345	1,465	1,605	1,655
		Non-Academic Contract	40	40	40	50	85	65	65	55	50
		Unknown	20	20	20	20	15	15	15	15	15
	IT, systems sciences & computer software engineering	Academic Contract	1,015	1,110	1,140	1,205	1,270	1,455	1,655	1,815	2,060
		Non-Academic Contract	45	50	65	60	80	70	70	85	100
		Unknown	25	35	25	30	30	35	40	30	25
	Mathematics	Academic Contract	740	845	860	905	880	970	1,000	1,080	1,130
		Non-Academic Contract	15	10	20	20	35	20	20	20	30
		Unknown	15	15	20	15	10	20	20	20	15
Not known	Physics	Academic Contract	90	145	110	85	55	40	45	50	50
		Non-Academic Contract	30	30	25	20	15	10	10	10	10
		Unknown	25	25	25	20	15	10	5	5	5
	Biosciences	Academic Contract	245	265	235	155	100	70	100	100	100
		Non-Academic Contract	65	70	50	35	30	20	25	20	20
		Unknown	85	75	65	50	35	25	30	25	20
	Chemistry	Academic Contract	65	85	130	95	40	15	20	30	25
		Non-Academic Contract	25	25	25	20	10	10	10	10	10
		Unknown	20	15	15	15	5	<5	5	5	5
	Electrical, electronic & computer engineering	Academic Contract	45	40	30	20	20	10	5	5	5
		Non-Academic Contract	5	10	5	<5	5	5	5	<5	<5
		Unknown	5	10	5	<5	5	<5	<5	<5	<5
	IT, systems sciences & computer software engineering	Academic Contract	125	115	70	45	70	60	55	60	55
		Non-Academic Contract	30	10	5	5	5	5	5	5	5
		Unknown	10	10	5	5	5	5	10	5	10
	Mathematics	Academic Contract	85	120	80	65	45	20	20	30	30
		Non-Academic Contract	5	5	5	<5	<5	<5	<5	<5	5
		Unknown	10	10	10	10	5	5	5	5	5

Table 16: *HESA data for academic and non-academic staff by nationality for 2012/13 and 2020/21.*

Table 17 shows how the proportion of staff of different nationalities changes over time for academic and non-academic staff for each subject. For academic staff members from the UK, the proportion of Physics staff decreased from 43% in 2012/13 to 42% in 2020/21. Non-academic staff in Physics from the UK represented 17% of Physics staff in 2012/13 and in 2020/21 this proportion had decreased to 14%.

For members of staff from the EU in Physics, the proportion of academic staff increased by 2 percentage points from 17% to 19%. Non-academic staff is 1% in 2020/21, the same as it was in 2012/13, though during this time period this proportion did increase to 2% before decreasing again.

The proportion of non-academic staff from non-EU, non-UK countries for Physics has remained at 1% over the period of time considered. Whereas the proportion of academic staff from non-EU, non-UK countries for Physics increased by four percentage points from 11% to 15%.

			Academic Year								
Nationality	Discipline	Academic Employment Function	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
UK	Physics	Academic Contract	43%	41%	41%	40%	39%	40%	40%	41%	42%
		Non-Academic Contract	17%	16%	16%	16%	17%	16%	16%	14%	14%
		Unknown	7%	7%	6%	6%	6%	6%	7%	7%	6%
	Biosciences	Academic Contract	45%	44%	44%	44%	45%	45%	45%	46%	47%
		Non-Academic Contract	20%	19%	19%	19%	18%	17%	17%	15%	14%
		Unknown	8%	8%	8%	7%	7%	7%	7%	6%	6%
	Chemistry	Academic Contract	47%	46%	44%	44%	44%	45%	45%	46%	46%
		Non-Academic Contract	16%	16%	16%	16%	15%	15%	15%	14%	13%
		Unknown	8%	8%	7%	7%	8%	8%	7%	7%	6%
	Electrical, electronic & computer engineering	Academic Contract	44%	44%	43%	42%	41%	41%	39%	39%	39%
		Non-Academic Contract	14%	13%	13%	12%	13%	12%	12%	11%	10%
		Unknown	8%	8%	7%	7%	7%	6%	6%	6%	6%
	IT, systems sciences & computer software engineering	Academic Contract	50%	48%	48%	46%	44%	44%	44%	45%	45%
		Non-Academic Contract	12%	13%	12%	12%	13%	11%	11%	9%	8%
		Unknown	9%	8%	8%	8%	9%	8%	7%	6%	5%
	Mathematics	Academic Contract	50%	47%	46%	45%	45%	45%	44%	45%	44%
		Non-Academic Contract	6%	6%	7%	6%	7%	6%	6%	5%	5%
		Unknown	7%	7%	7%	7%	7%	7%	7%	6%	6%
EU	Physics	Academic Contract	17%	18%	19%	20%	20%	20%	20%	19%	19%
		Non-Academic Contract	1%	1%	1%	1%	2%	2%	2%	1%	1%
		Unknown	1%	1%	0%	1%	1%	1%	1%	1%	1%
	Biosciences	Academic Contract	13%	14%	15%	16%	16%	16%	16%	17%	17%
		Non-Academic Contract	2%	2%	2%	2%	2%	2%	2%	2%	2%
		Unknown	1%	1%	1%	1%	1%	1%	1%	1%	1%
	Chemistry	Academic Contract	14%	15%	15%	17%	17%	17%	16%	15%	15%
		Non-Academic Contract	1%	1%	1%	1%	1%	1%	1%	1%	2%
		Unknown	0%	0%	1%	1%	1%	1%	1%	1%	1%
	Electrical, electronic & computer engineering	Academic Contract	13%	13%	14%	15%	15%	15%	15%	14%	14%
		Non-Academic Contract	1%	1%	1%	1%	1%	1%	1%	1%	1%
		Unknown	1%	0%	0%	0%	0%	0%	0%	0%	0%
	IT, systems sciences & computer software engineering	Academic Contract	13%	14%	15%	17%	17%	18%	18%	19%	18%
		Non-Academic Contract	1%	1%	1%	1%	1%	1%	1%	1%	1%
		Unknown	1%	1%	0%	1%	1%	1%	1%	1%	1%
	Mathematics	Academic Contract	19%	21%	21%	21%	23%	23%	24%	23%	23%
		Non-Academic Contract	1%	1%	1%	1%	1%	1%	1%	1%	1%
		Unknown	1%	1%	1%	1%	1%	1%	1%	0%	0%
Non-EU, Non-UK	Physics	Academic Contract	11%	12%	13%	13%	13%	14%	14%	14%	15%
		Non-Academic Contract	1%	1%	1%	1%	1%	1%	1%	1%	1%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Biosciences	Academic Contract	8%	9%	9%	9%	9%	10%	10%	11%	11%
		Non-Academic Contract	1%	1%	1%	1%	1%	1%	1%	1%	1%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Chemistry	Academic Contract	10%	11%	11%	12%	12%	13%	13%	15%	15%
		Non-Academic Contract	1%	1%	1%	1%	1%	1%	1%	1%	1%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Electrical, electronic & computer engineering	Academic Contract	18%	19%	21%	22%	22%	23%	25%	26%	28%
		Non-Academic Contract	1%	1%	1%	1%	1%	1%	1%	1%	1%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%
	IT, systems sciences & computer software engineering	Academic Contract	12%	13%	13%	14%	14%	15%	16%	18%	20%
		Non-Academic Contract	1%	1%	1%	1%	1%	1%	1%	1%	1%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Mathematics	Academic Contract	15%	16%	16%	16%	16%	17%	17%	18%	19%
		Non-Academic Contract	0%	0%	0%	0%	1%	0%	0%	0%	0%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%
Not known	Physics	Academic Contract	2%	2%	2%	1%	1%	1%	1%	1%	1%
		Non-Academic Contract	1%	0%	0%	0%	0%	0%	0%	0%	0%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Biosciences	Academic Contract	1%	1%	1%	1%	0%	0%	0%	1%	1%
		Non-Academic Contract	0%	0%	0%	0%	0%	0%	0%	0%	0%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Chemistry	Academic Contract	1%	2%	2%	2%	1%	0%	0%	1%	0%
		Non-Academic Contract	0%	0%	0%	0%	0%	0%	0%	0%	0%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Electrical, electronic & computer engineering	Academic Contract	1%	1%	1%	0%	0%	0%	0%	0%	0%
		Non-Academic Contract	0%	0%	0%	0%	0%	0%	0%	0%	0%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%
	IT, systems sciences & computer software engineering	Academic Contract	1%	1%	1%	1%	1%	1%	1%	1%	1%
		Non-Academic Contract	0%	0%	0%	0%	0%	0%	0%	0%	0%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Mathematics	Academic Contract	2%	2%	2%	1%	1%	0%	0%	0%	1%
		Non-Academic Contract	0%	0%	0%	0%	0%	0%	0%	0%	0%
		Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 17: *HESA data by Academic and Non-Academic staff by proportion of nationality for staff from 2012/13 to 2020/21.*

For Physics, the number of academic staff from the UK increased by 23% during the time period 2012/13 to 2020/21. During this same time period, Physics academic staff members from the EU and from non-EU, non-UK countries increased by 43% and 68% respectively. If these figures are compared to non-academic staff members, it can be seen that the non-academic staff from the UK increased by 8%, and EU and non-EU, non-UK staff increased by 79% and 45% respectively. These figures suggest that Physics staff in Higher Education institutions from outside of the UK are increasing at a faster rate than those members of staff from the UK for both academic and non-academic contracts.

For other subjects, the number of academic staff from the UK increased between 2012/13 and 2020/21. Biosciences grew by the greatest proportion (11%) and Chemistry grew by the least (4%). This contrasts with the number of non-academic staff where all subjects, except Mathematics, saw a decrease in staff numbers. Biosciences and IT, systems sciences & computer software engineering decreased by 22% and Mathematics saw an increase of 10%.

Members of staff from the EU for subjects comparable to Physics saw an increase of between 16% to 71% for academic contracts. For non-academic contracts, Chemistry saw the largest increase (106%). Biosciences saw the smallest increase in the number of non-academic staff from the EU (22%).

The number of academic staff for all subjects from non-EU, non-UK countries increased by a greater proportion than academic staff from the EU or the UK.

			Academic Year									
Nationality	Discipline	Academic Employment Function	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
UK	Physics	Academic Contract	2,530	4%	5%	1%	-1%	3%	4%	2%	2%	23%
		Non-Academic Contract	990	5%	7%	3%	5%	-3%	3%	-10%	0%	8%
		Unknown	425	3%	2%	-2%	4%	4%	6%	2%	-9%	8%
	Biosciences	Academic Contract	8,160	6%	2%	-2%	3%	2%	-1%	2%	-1%	11%
		Non-Academic Contract	3,550	5%	-1%	-1%	-3%	-2%	0%	-15%	-6%	-22%
		Unknown	1,535	2%	-1%	-6%	0%	-3%	-3%	-10%	-6%	-24%
	Chemistry	Academic Contract	2,445	5%	-2%	0%	1%	2%	2%	-1%	-3%	4%
		Non-Academic Contract	830	10%	0%	0%	-4%	1%	2%	-13%	-6%	-11%
		Unknown	410	4%	-1%	-2%	5%	2%	-4%	-9%	-9%	-14%
	Electrical, electronic & computer engineering	Academic Contract	2,230	5%	2%	0%	-3%	2%	-1%	3%	-2%	5%
		Non-Academic Contract	695	0%	1%	-1%	3%	-4%	7%	-6%	-9%	-10%
		Unknown	400	-1%	1%	0%	-5%	-7%	6%	-2%	-9%	-17%
	IT, systems sciences & computer software engineering	Academic Contract	4,155	-1%	0%	-3%	1%	5%	4%	-1%	4%	10%
		Non-Academic Contract	1,030	7%	-6%	-3%	14%	-7%	-1%	-19%	2%	-15%
		Unknown	735	-1%	-4%	3%	9%	-6%	-1%	-19%	-9%	-26%
	Mathematics	Academic Contract	2,490	1%	-2%	2%	0%	3%	0%	3%	0%	7%
		Non-Academic Contract	285	14%	8%	2%	2%	-12%	7%	-11%	3%	10%
		Unknown	365	2%	3%	5%	1%	1%	-1%	-7%	-10%	-7%
EU	Physics	Academic Contract	995	16%	14%	4%	3%	5%	2%	-4%	-1%	43%
		Non-Academic Contract	60	8%	8%	25%	21%	5%	4%	-6%	-1%	79%
		Unknown	35	4%	-2%	14%	15%	12%	-4%	18%	7%	82%
	Biosciences	Academic Contract	2,360	14%	10%	4%	3%	4%	-1%	1%	-3%	38%
		Non-Academic Contract	310	10%	6%	22%	0%	-2%	5%	-9%	-8%	22%
		Unknown	100	7%	0%	-5%	23%	-10%	10%	-8%	-10%	2%
	Chemistry	Academic Contract	705	20%	4%	8%	6%	-2%	-7%	-6%	-7%	16%
		Non-Academic Contract	45	33%	11%	17%	8%	-3%	9%	-7%	13%	106%
	Electrical, electronic & computer engineering	Academic Contract	635	8%	13%	7%	1%	3%	3%	-1%	-2%	35%
		Non-Academic Contract	30	12%	27%	11%	30%	-9%	9%	-19%	-2%	59%
		Unknown	25	-24%	-13%	57%	-12%	-12%	26%	-5%	-6%	-10%
	IT, systems sciences & computer software engineering	Academic Contract	1,115	12%	6%	8%	5%	15%	4%	1%	4%	71%
		Non-Academic Contract	55	43%	5%	-4%	24%	7%	16%	-28%	3%	66%
		Unknown	45	8%	-28%	38%	28%	3%	49%	-19%	-21%	34%
	Mathematics	Academic Contract	955	17%	3%	3%	6%	5%	6%	0%	1%	47%
		Non-Academic Contract	30	2%	-4%	13%	27%	-1%	-12%	-7%	33%	53%
		Unknown	30	5%	2%	-6%	2%	11%	-1%	-8%	-4%	1%
Non-EU, Non-UK	Physics	Academic Contract	655	16%	15%	5%	1%	8%	2%	5%	4%	68%
		Non-Academic Contract	40	6%	13%	4%	21%	-3%	19%	-14%	-5%	45%
	Biosciences	Academic Contract	1,480	12%	5%	1%	3%	8%	6%	4%	2%	49%
		Non-Academic Contract	220	7%	-5%	-3%	1%	-1%	1%	-21%	2%	-19%
		Unknown	60	13%	-10%	-1%	-4%	-14%	22%	-1%	-7%	-8%
	Chemistry	Academic Contract	540	9%	8%	4%	6%	6%	5%	9%	0%	58%
		Non-Academic Contract	45	-6%	22%	-13%	5%	-19%	-10%	17%	-5%	-16%
	Electrical, electronic & comput..	Academic Contract	930	8%	15%	6%	0%	9%	9%	9%	3%	79%
		Non-Academic Contract	40	6%	4%	19%	65%	-21%	-3%	-16%	-11%	26%
	IT, systems sciences & computer software engineering	Academic Contract	1,015	9%	3%	6%	5%	15%	14%	10%	13%	103%
		Non-Academic Contract	45	15%	27%	-5%	32%	-10%	1%	16%	20%	131%
		Unknown	25	33%	-28%	10%	6%	18%	14%	-27%	-9%	0%
	Mathematics	Academic Contract	740	14%	2%	5%	-3%	10%	3%	8%	4%	52%

Table 18: *HESA data for the percentage change from the previous year by staff in academic and non-academic contracts by nationality for 2012/13 to 2020/21.*

Ethnicity

Below is a detailed breakdown of ethnicities for academic and non-academic staff members for selected STEM subjects. As mentioned in the terms and reference, the values are rounded to the nearest 5, and <5 indicate 1 or 2 members of staff. There are 5 academic Physics staff in 2020/21 with Black or Black British – Caribbean, Other Black background ethnicity and Asian or Asian British – Bangladeshi, these are the ethnicities with the smallest number of Physics academic staff. For non-academic contracts in Physics, the ethnicities with the smaller number of staff are Other Black background and Asian or Asian British – Bangladeshi with none and less than 3 members respectively.

		2020/21											
Academic Employment Function	Discipline	Asian or Asian British - Bangladeshi	Asian or Asian British - Indian	Asian or Asian British - Pakistani	Other Asian background	Black or Black British - African	Black or Black British - Caribbean	Other Black background	Chinese	Mixed	White	Other	Unknown
Academic Contract	Physics	5	240	25	120	20	5	5	235	140	4,090	110	695
	Biosciences	45	575	105	300	195	30	25	410	355	11,025	320	1,260
	Chemistry	15	185	30	95	30	5	5	275	85	3,030	90	390
	Electrical, electronic & computer engineering	40	260	120	265	95	5	5	620	105	2,645	250	460
	IT, systems sciences & computer software engineering	55	345	180	325	205	25	10	650	200	5,330	365	920
	Mathematics	10	135	20	125	40	5	5	275	115	3,770	125	600
Non-Academic Contract	Physics	<5	25	10	10	5	5		15	20	1,050	15	95
	Biosciences	5	100	40	40	45	10	5	55	60	2,785	40	170
	Chemistry	5	20	10	15	5	5		10	10	745	5	45
	Electrical, electronic & computer engineering	5	30	5	10	5	5		25	10	560	10	50
	IT, systems sciences & computer software engineering	10	35	25	15	10	5	<5	15	20	825	20	85
	Mathematics	<5	10	5	5	5	<5	<5	5	10	310	5	40
Unknown	Physics	5	10	5	5	5	10		10	10	440	5	40
	Biosciences	5	30	5	10	10	10	5	15	25	1,155	15	60
	Chemistry	<5	10	<5	5	5	<5		10	10	365	<5	10
	Electrical, electronic & computer engineering	<5	10	5	<5	5	<5	<5	5	5	310	5	25
	IT, systems sciences & computer software engineering	5	15	5	5	5	5	5	10	15	520	5	40
	Mathematics	<5	5	<5	5	5	5	<5	5	10	320	<5	25

Table 19: *Detailed ethnic breakdown of academic and non-academic staff for selected STEM subjects in 2020/21. (<5 represent 1 or 2 staff. Blank cells represent no staff at all.)*

Figure 16 shows that the percentage of staff from all ethnic groups in Physics is similar to all other academic disciplines for both academic and non-academic contracts. In parenthesis are the percentages values excluding the unknown ethnicity, for a better comparison with the 2011 census.

Physics academic and non-academic staff who are Black make up 1% of the staff population despite the 2011 census for England and Wales identifying that 3% of the population are Black. Underrepresentation is also seen across all other disciplines where Black staff make up only 2% of the total.

Academic staff for both Physics, and all other academic disciplines, over represent those people whose ethnicity is recorded as Asian in the HESA data set. The 2011 census found that 8% of the population of England and Wales are Asian whereas, excluding the staff with unknown ethnicity, 13% of Physics academic staff are Asian and 11% of all other academic discipline academic staff are. For non-academic contracts, Asian people are 5% and 7% of staff for Physics and all other academic disciplines respectively.

Approximately 86% of the population of England and Wales is White. For non-academic staff in Physics and all other academic disciplines, the proportion of White staff is 91% and 88% respectively. For academic staff, these percentages are 82% for Physics and 81% for all other academic disciplines. Therefore, White ethnicity is slightly overrepresented in non-academic and slightly underrepresented in academic staff.

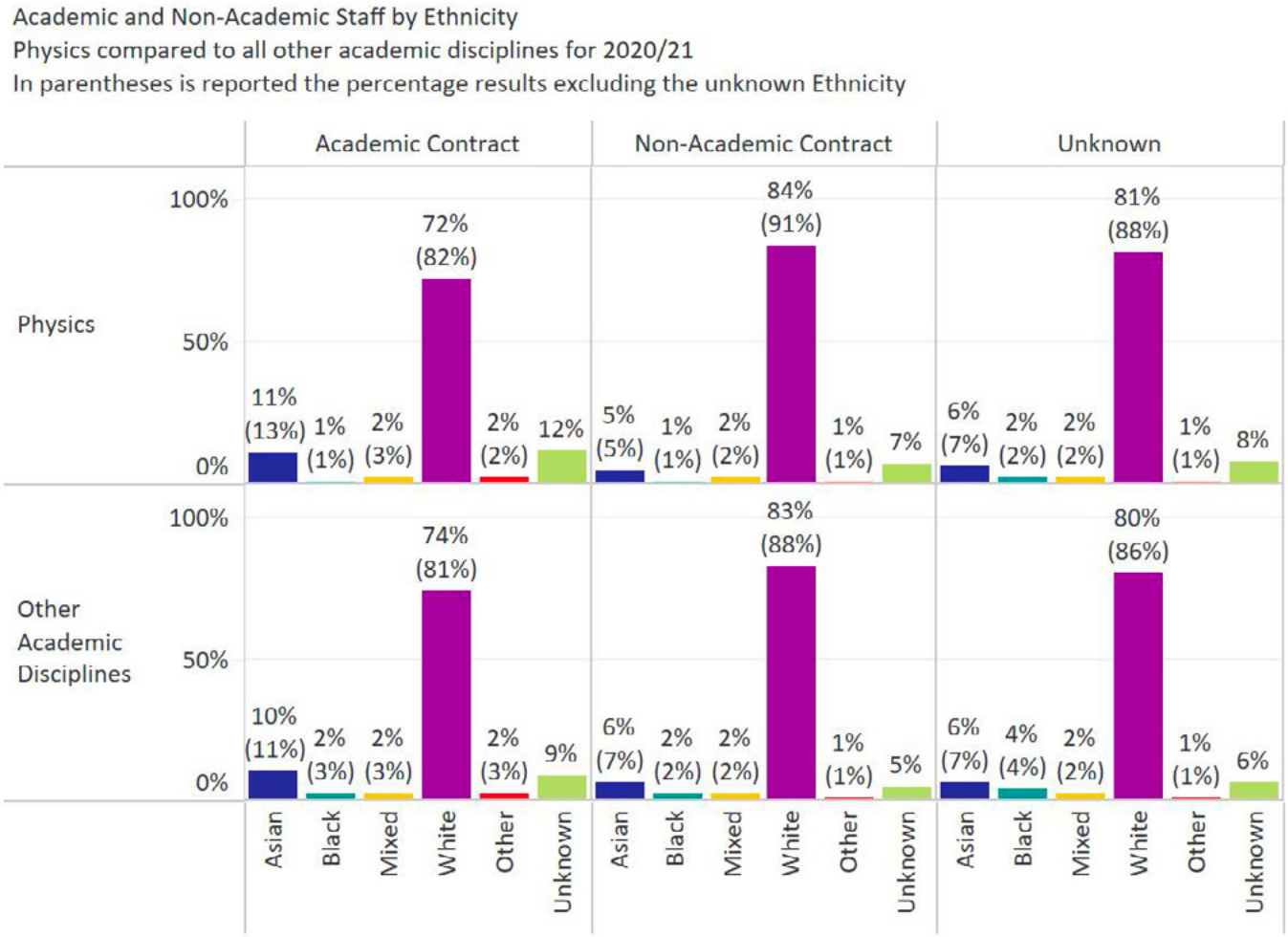

***Figure* 16:** *HESA data for academic and non-academic staff for Physics and all other academic disciplines by ethnicity for 2020/21*

In 2020/21 the number of Asian academic staff in Physics is greater than in Chemistry by 25 members, whereas in 2012/13 the number of Asian academic staff for Physics was slightly less than in Chemistry. The number of non-academic staff for Physics and Chemistry were similar in 2012/13 and 2020/21.

Out of all the subjects in table 20, Physics had the fewest Black academic staff. Most subjects had few non-academic Black members of staff. Biosciences had the greatest number of Black non-academic staff but overall, the number of non-academic staff members for Biosciences vastly outnumbers the non-academic staff for all other subjects.

The majority of staff, academic and non-academic, are White for all subjects stated. For Physics, the number of White academic staff and non-academic staff increased by 735 and 90 members respectively.

Discipline	Ethnicity	Academic Employment Function	Academic Year								
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Physics	Asian	Academic Contract	345	385	440	445	460	535	570	605	625
		Non-Academic Contract	55	60	65	65	70	65	75	60	60
		Unknown	20	25	35	25	30	40	35	35	35
	Black	Academic Contract	10	20	15	20	15	20	20	30	30
		Non-Academic Contract	10	10	5	10	10	15	15	10	15
		Unknown	10	5	5	5	10	10	10	15	10
	Mixed	Academic Contract	60	70	90	105	105	120	135	140	140
		Non-Academic Contract	15	10	20	20	20	25	20	20	20
		Unknown	5	5	10	5	5	10	10	10	10
	White	Academic Contract	3,355	3,595	3,850	3,950	3,950	4,070	4,145	4,090	4,090
		Non-Academic Contract	960	1,010	1,065	1,090	1,175	1,145	1,170	1,070	1,050
		Unknown	420	435	430	430	450	455	470	475	440
	Other	Academic Contract	45	70	75	75	80	85	85	95	110
		Non-Academic Contract	5	5	5	5	15	10	15	15	15
		Unknown	5	5	5	5	5	5	5	5	5
	Unknown	Academic Contract	455	545	600	585	565	560	590	640	695
		Non-Academic Contract	85	90	90	105	90	90	95	85	95
		Unknown	35	35	40	35	35	35	35	45	40
Biosciences	Asian	Academic Contract	985	1,010	1,090	1,160	1,240	1,300	1,350	1,415	1,435
		Non-Academic Contract	255	275	270	255	255	270	280	235	240
		Unknown	70	80	70	70	65	65	85	70	65
	Black	Academic Contract	120	145	145	125	150	170	200	230	250
		Non-Academic Contract	55	65	60	65	55	70	70	50	55
		Unknown	15	15	15	20	20	20	20	25	25
	Mixed	Academic Contract	185	195	200	205	235	275	305	345	355
		Non-Academic Contract	35	45	45	60	65	65	70	65	60
		Unknown	25	25	25	30	35	30	25	25	25
	White	Academic Contract	9,830	10,470	10,915	10,835	11,010	11,240	11,155	11,265	11,025
		Non-Academic Contract	3,525	3,700	3,675	3,720	3,620	3,505	3,485	2,960	2,785
		Unknown	1,550	1,585	1,575	1,475	1,485	1,420	1,360	1,230	1,155
	Other	Academic Contract	165	215	230	225	250	270	295	320	320
		Non-Academic Contract	25	35	35	30	35	40	45	40	40
		Unknown	10	10	10	10	10	10	15	10	15
	Unknown	Academic Contract	955	1,195	1,160	1,090	1,080	1,145	1,180	1,225	1,260
		Non-Academic Contract	250	275	255	245	220	220	235	220	170
		Unknown	105	105	95	80	70	65	90	85	60
Chemistry	Asian	Academic Contract	360	410	425	445	465	525	540	605	600
		Non-Academic Contract	50	45	50	50	50	55	55	55	60
		Unknown	15	15	15	20	25	25	25	30	25
	Black	Academic Contract	30	30	35	30	35	40	40	35	40
		Non-Academic Contract	10	10	15	15	15	10	10	10	10
		Unknown	10	5	5	5	5	5	5	5	5
	Mixed	Academic Contract	40	40	50	50	55	60	70	80	85
		Non-Academic Contract	10	5	10	15	10	15	20	15	10
		Unknown	<5	<5	<5	<5	5	10	5	5	10
	White	Academic Contract	2,945	3,180	3,170	3,190	3,280	3,300	3,285	3,215	3,030
		Non-Academic Contract	810	900	915	910	880	870	890	775	745
		Unknown	410	430	425	415	425	430	435	395	365
	Other	Academic Contract	45	45	50	50	65	70	85	80	90
		Non-Academic Contract	5	5	5	5	5	5	5	10	5
		Unknown	<5	<5	<5	<5		<5	<5	<5	<5
	Unknown	Academic Contract	335	370	430	455	410	365	375	375	390
		Non-Academic Contract	60	65	60	55	50	50	50	45	45
		Unknown	30	30	30	25	20	25	20	20	10
Electrical, electronic & computer engineering	Asian	Academic Contract	780	825	955	1,020	1,050	1,145	1,235	1,340	1,305
		Non-Academic Contract	50	60	60	70	95	85	105	80	70
		Unknown	25	20	20	25	25	15	20	25	20
	Black	Academic Contract	60	65	75	80	70	85	100	105	100
		Non-Academic Contract	10	5	10	15	20	20	20	20	15
		Unknown	10	10	10	15	10	15	10	10	5
	Mixed	Academic Contract	45	50	60	60	65	75	85	90	105
		Non-Academic Contract	10	10	10	10	10	10	10	20	10
		Unknown	5	5	5	5	5	5	5	10	5
	White	Academic Contract	2,490	2,600	2,705	2,770	2,640	2,720	2,685	2,665	2,645
		Non-Academic Contract	645	640	645	635	670	615	650	605	560
		Unknown	390	385	375	380	360	340	355	340	310
	Other	Academic Contract	145	160	170	170	180	195	190	225	250
		Non-Academic Contract	5	10	10	10	15	15	15	10	10
		Unknown	5	5	5	5	5	<5	<5	5	5
	Unknown	Academic Contract	315	360	365	335	375	345	375	445	460
		Non-Academic Contract	50	50	45	50	50	55	55	55	50
		Unknown	20	25	25	20	15	15	20	25	25
IT, systems sciences & computer software engineering	Asian	Academic Contract	880	895	890	945	1,000	1,145	1,265	1,400	1,555
		Non-Academic Contract	60	70	70	60	80	85	80	80	95
		Unknown	40	45	40	40	40	45	60	40	35
	Black	Academic Contract	105	125	140	135	125	155	180	210	240
		Non-Academic Contract	25	20	20	35	35	25	25	15	20
		Unknown	25	30	20	30	20	20	20	20	15
	Mixed	Academic Contract	95	90	95	100	125	150	170	185	200
		Non-Academic Contract	10	15	15	15	20	20	25	15	20
		Unknown	5	5	15	15	25	15	10	20	15
	White	Academic Contract	4,785	4,845	4,860	4,795	4,830	5,180	5,325	5,270	5,330
		Non-Academic Contract	975	1,050	995	965	1,100	1,040	1,010	805	825
		Unknown	715	705	660	680	760	710	725	585	520
	Other	Academic Contract	130	175	200	195	210	260	320	330	365
		Non-Academic Contract	5	10	10	10	10	10	20	30	20
		Unknown	5	10	10	10	10	15	10	5	5
	Unknown	Academic Contract	415	485	475	525	580	605	670	700	920
		Non-Academic Contract	75	75	70	65	85	75	95	90	85
		Unknown	25	20	25	25	25	30	50	40	40
Mathematics	Asian	Academic Contract	345	410	405	435	415	460	475	535	560
		Non-Academic Contract	10	10	20	15	30	20	20	25	25
		Unknown	20	20	25	20	25	20	25	20	20
	Black	Academic Contract	35	35	40	40	45	35	50	45	50
		Non-Academic Contract		<5	<5	<5	<5	5	5	5	5
		Unknown	5	10	10	10	5	10	10	5	5
	Mixed	Academic Contract	50	55	70	85	85	95	95	110	115
		Non-Academic Contract	5	5	5	5	10	5	5	10	10
		Unknown	5	5	5	5	5	10	5	10	10
	White	Academic Contract	3,365	3,470	3,450	3,540	3,585	3,710	3,750	3,770	3,770
		Non-Academic Contract	295	320	345	350	365	320	340	295	310
		Unknown	355	370	360	385	380	395	395	360	320
	Other	Academic Contract	75	105	105	95	100	105	115	120	125
		Non-Academic Contract	5	5	5	5	<5	5	<5	5	5
		Unknown	<5	<5	<5	<5	5	5	<5	<5	<5
	Unknown	Academic Contract	400	505	475	460	460	470	495	560	600
		Non-Academic Contract	25	30	30	25	30	25	25	20	40
		Unknown	30	25	35	30	25	25	25	30	25

Table 20: *HESA data for staff by academic and non-academic contracts and ethnicity for 2012/13 and 2020/21. (<5 represent 1 or 2 staff. Blank cells represent no staff at all.)*

Between 2012/13 and 2020/21, the number of Black academic Physics staff members increased from 10 to 30 people. During the same time period, the number of Black non-academic staff in Physics also increased from 10 to 15. The number of Asian academic Physics staff increased by 82% and non-academic Physics staff increased by 15%. Physics staff with a mixed ethnic background increased by 130% for those on academic contracts and from 15 to 20 people for those on non-academic contracts (approximately 33%). White Physics staff saw a 22% increase in the number of staff for those on academic contracts and 10% for those on non-academic contracts. From these figures, the population of Physics academic staff has grown faster than the population of Physics non-academic staff for all ethnicities except for those whose ethnicity is recorded as Other.

IT, systems sciences & computer software engineering had the greatest increase in Black academic staff with an increase of 125%. Biosciences had a 109% increase, Electrical, electronic & computer engineering had 71% increase and Mathematics had an increase of 44%. Chemistry had the smallest increase at 34% with no change for Black non-academic staff.

Electrical, electronic & computer engineering saw the largest increase for Asian academic staff of 67%. All other selected STEM subjects had a similar increase in Asian academic staff with Biosciences having the smallest increase of 45%. For non-academic contracts, there was a wider spread of percentage increases for Asian staff with the only exception of Bioscience (-5%). IT, systems sciences & computer software engineering had the larger increase of non-academic Asian staff of 56%.

The number of White academic staff members increased between 3-12% with Biosciences and Mathematics seeing the greatest increase. However, all subjects saw a decrease in non-academic White staff numbers between 8% and 21% with the only exception of Mathematics that increased by 5%.

Discipline	Ethnicity	Academic Employment Function	Academic Year									
			2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
Physics	Asian	Academic Contract	345	12%	14%	1%	4%	16%	7%	6%	3%	82%
		Non-Academic Contract	55	10%	12%	-2%	9%	-8%	14%	-19%	4%	15%
	Mixed	Academic Contract	60	18%	27%	19%	-4%	16%	15%	0%	1%	130%
	White	Academic Contract	3,355	7%	7%	3%	0%	3%	2%	-1%	0%	22%
		Non-Academic Contract	960	5%	6%	3%	8%	-3%	2%	-9%	-2%	10%
		Unknown	420	4%	-1%	0%	4%	1%	4%	0%	-7%	5%
	Other	Academic Contract	45	57%	7%	-2%	8%	3%	1%	11%	20%	147%
	Unknown	Academic Contract	455	20%	10%	-2%	-4%	-1%	5%	8%	8%	52%
		Non-Academic Contract	85	4%	4%	16%	-14%	-3%	9%	-13%	12%	11%
		Unknown	35	3%	11%	-8%	-10%	12%	0%	17%	-5%	18%
Biosciences	Asian	Academic Contract	985	2%	8%	6%	7%	5%	4%	5%	1%	45%
		Non-Academic Contract	255	8%	0%	-6%	-1%	6%	4%	-16%	3%	-5%
		Unknown	70	10%	-9%	-1%	-5%	-4%	28%	-17%	-2%	-6%
	Black	Academic Contract	120	21%	-1%	-13%	19%	16%	17%	14%	10%	109%
		Non-Academic Contract	55	18%	-12%	9%	-14%	25%	0%	-24%	11%	1%
	Mixed	Academic Contract	185	4%	3%	4%	13%	18%	9%	13%	4%	91%
		Non-Academic Contract	35	19%	1%	35%	3%	3%	11%	-11%	-5%	64%
		Unknown	25	6%	7%	15%	15%	-12%	-14%	-6%	-6%	1%
	White	Academic Contract	9,830	7%	4%	-1%	2%	2%	-1%	1%	-2%	12%
		Non-Academic Contract	3,525	5%	-1%	1%	-3%	-3%	-1%	-15%	-6%	-21%
		Unknown	1,550	2%	-1%	-6%	1%	-5%	-4%	-9%	-6%	-25%
	Other	Academic Contract	165	29%	7%	-1%	10%	8%	10%	9%	-1%	92%
		Non-Academic Contract	25	32%	-2%	-16%	32%	15%	5%	-5%	-8%	52%
	Unknown	Academic Contract	955	25%	-3%	-6%	-1%	6%	3%	4%	3%	32%
		Non-Academic Contract	250	9%	-7%	-3%	-10%	-1%	7%	-6%	-21%	-31%
		Unknown	105	0%	-13%	-14%	-11%	-10%	37%	-5%	-26%	-42%
Chemistry	Asian	Academic Contract	360	14%	4%	5%	4%	14%	3%	12%	-1%	67%
		Non-Academic Contract	50	-7%	7%	-1%	5%	6%	-2%	5%	2%	15%
	Black	Academic Contract	30	-9%	26%	-18%	26%	10%	-3%	-7%	13%	34%
	Mixed	Academic Contract	40	8%	16%	6%	9%	10%	15%	13%	6%	119%
	White	Academic Contract	2,945	8%	0%	1%	3%	1%	-1%	-2%	-6%	3%
		Non-Academic Contract	810	11%	1%	0%	-4%	-1%	2%	-13%	-4%	-8%
		Unknown	410	5%	-1%	-2%	2%	1%	0%	-9%	-7%	-10%
	Other	Academic Contract	45	4%	11%	2%	28%	11%	19%	-6%	13%	111%
	Unknown	Academic Contract	335	10%	16%	6%	-10%	-11%	2%	-1%	5%	17%
		Non-Academic Contract	60	15%	-8%	-11%	-11%	-1%	-2%	-3%	1%	-20%
		Unknown	30	2%	0%	-19%	-11%	18%	-27%	-6%	-33%	-60%
Electrical, electronic & computer engineering	Asian	Academic Contract	780	6%	16%	7%	3%	9%	8%	9%	-3%	67%
		Non-Academic Contract	50	27%	-1%	13%	43%	-10%	21%	-25%	-11%	48%
		Unknown	25	-12%	4%	27%	-9%	-33%	25%	15%	-10%	-9%
	Black	Academic Contract	60	5%	19%	10%	-13%	19%	16%	6%	-3%	71%
	Mixed	Academic Contract	45	14%	13%	6%	0%	17%	15%	7%	17%	129%
	White	Academic Contract	2,490	5%	4%	3%	-5%	3%	-1%	-1%	-1%	6%
		Non-Academic Contract	645	-1%	1%	-2%	5%	-8%	5%	-6%	-7%	-13%
		Unknown	390	-1%	-2%	2%	-5%	-7%	6%	-5%	-9%	-20%
	Other	Academic Contract	145	8%	6%	1%	4%	10%	-2%	17%	10%	68%
	Unknown	Academic Contract	315	15%	2%	-9%	13%	-8%	9%	18%	4%	47%
		Non-Academic Contract	50	2%	-6%	6%	-1%	12%	-2%	4%	-8%	7%
IT, systems sciences & computer software engineering	Asian	Academic Contract	880	2%	-1%	6%	6%	15%	10%	11%	11%	76%
		Non-Academic Contract	60	13%	2%	-15%	28%	7%	-7%	1%	22%	56%
		Unknown	40	12%	-9%	0%	-1%	9%	29%	-30%	-10%	-9%
	Black	Academic Contract	105	15%	12%	-4%	-4%	21%	18%	14%	16%	125%
		Non-Academic Contract	25	-16%	12%	45%	9%	-37%	18%	-51%	49%	-17%
		Unknown	25	26%	-33%	48%	-27%	5%	-8%	2%	-20%	-27%
	Mixed	Academic Contract	95	-7%	8%	6%	23%	20%	12%	11%	6%	107%
	White	Academic Contract	4,785	1%	0%	-1%	1%	7%	3%	-1%	1%	11%
		Non-Academic Contract	975	7%	-5%	-3%	14%	-6%	-3%	-20%	3%	-15%
		Unknown	715	-2%	-6%	3%	12%	-6%	2%	-20%	-11%	-27%
	Other	Academic Contract	130	34%	16%	-4%	9%	24%	21%	4%	10%	183%
	Unknown	Academic Contract	415	17%	-2%	11%	10%	4%	11%	4%	31%	122%
		Non-Academic Contract	75	0%	-6%	-10%	31%	-9%	28%	-9%	-6%	11%
		Unknown	25	-6%	5%	5%	10%	23%	52%	-23%	1%	67%
Mathematics	Asian	Academic Contract	345	18%	1%	7%	4%	11%	3%	13%	5%	62%
	Black	Academic Contract	35	-1%	15%	10%	4%	-16%	34%	-11%	10%	44%
	Mixed	Academic Contract	50	15%	25%	16%	1%	14%	0%	14%	7%	134%
	White	Academic Contract	3,365	3%	-1%	3%	1%	4%	1%	1%	0%	12%
		Non-Academic Contract	295	8%	8%	2%	4%	-13%	6%	-13%	5%	5%
		Unknown	355	3%	-2%	7%	-2%	4%	1%	-9%	-11%	-10%
	Other	Academic Contract	75	41%	-2%	-7%	3%	5%	9%	6%	0%	63%
	Unknown	Academic Contract	400	27%	-6%	-4%	1%	2%	5%	13%	7%	51%
		Non-Academic Contract	25	23%	-4%	-10%	17%	-12%	-2%	-15%	77%	61%
		Unknown	30	-16%	27%	-11%	-11%	-12%	5%	14%	-7%	-17%

Table 21: *HESA data for the percentage change from the previous year in staff by academic and non-academic contracts by ethnicity for 2012/13 to 2020/21.*

Age Group

Figure 17 shows that Physics academic staff tend to skew more towards younger age groups with 37% of staff being in two of the three youngest age groups, 26 to 30 years old (18%) and 31 to 35 years old (19%). This compares to just 25% of academic staff for other disciplines being in the same age groups. For all age groups in the range from 36 to 40 years old to 56 to 60 years old, non-academic Physics staff in each age group make between 12% and 15% of the staff population. This is a more even distribution of non-academic staff, than we see across all other disciplines which decreases from 36 to 40 years old and above.

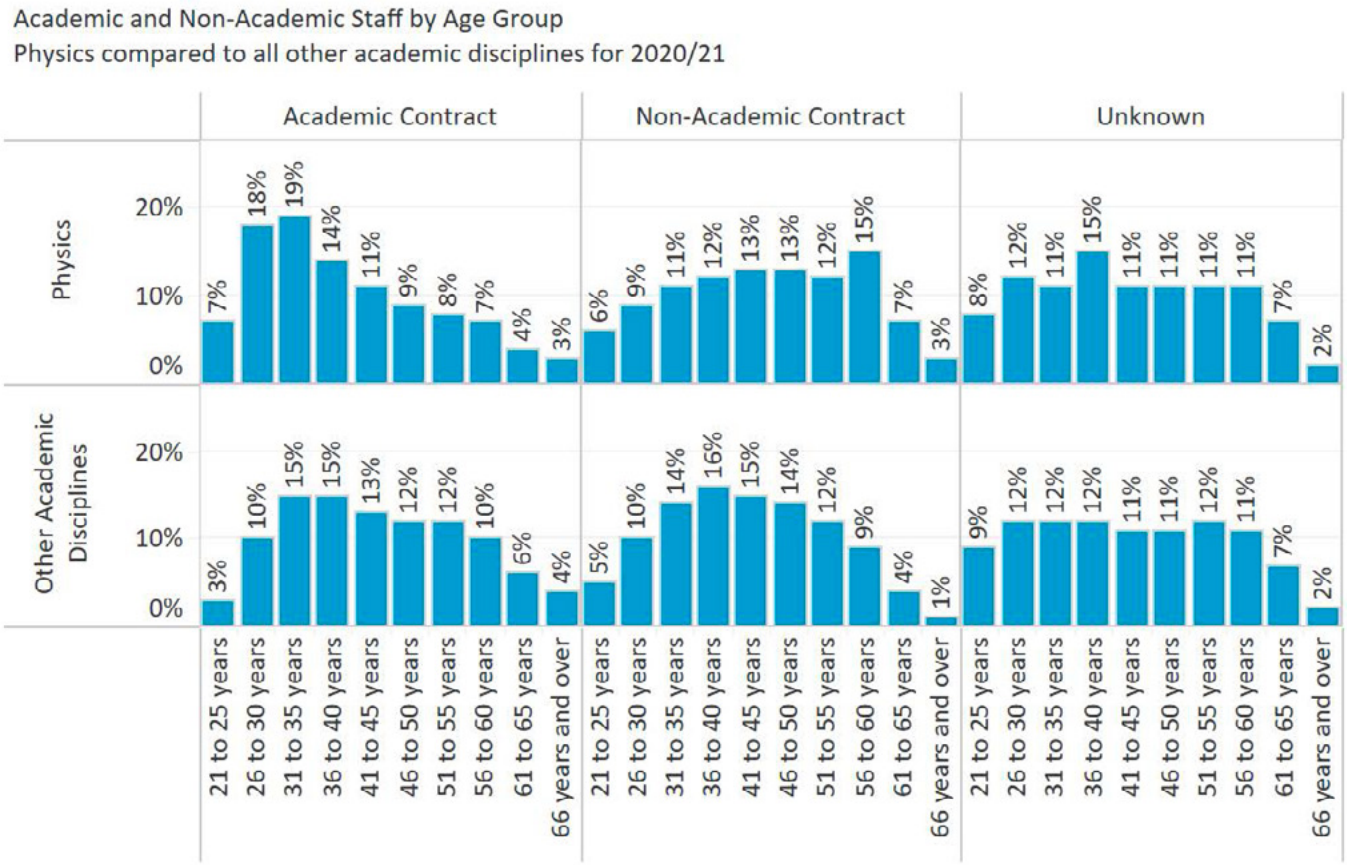

***Figure* 17:** *HESA data for Physics staff compared to all other disciplines for academic and non-academic contracts by age group.*

Salary

For each salary band less than £55k, the proportion of non-academic staff is higher than academic staff, with the only exception of the salary band £35k to £40k. The opposite is true for all the salary bands above £55k, where the proportion of academic staff members are higher than non-academic staff.

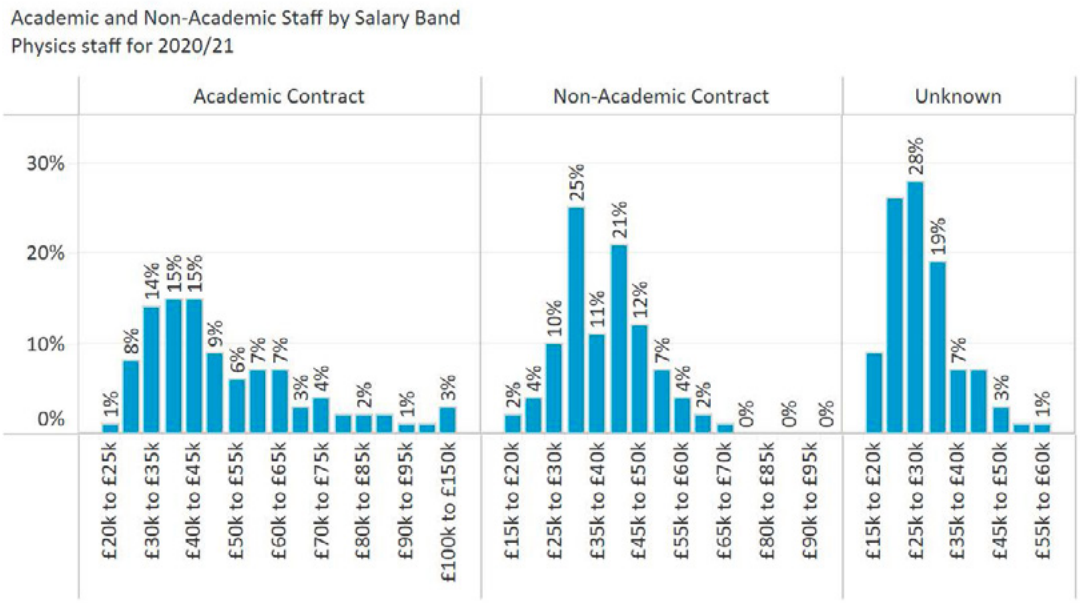

***Figure* 18:** *HESA data for academic and non-academic staff by salary band for 2020/21.*

The below figure shows that, for academic contracts and non-academic, female members of staff tend to be in the lower salary bands.

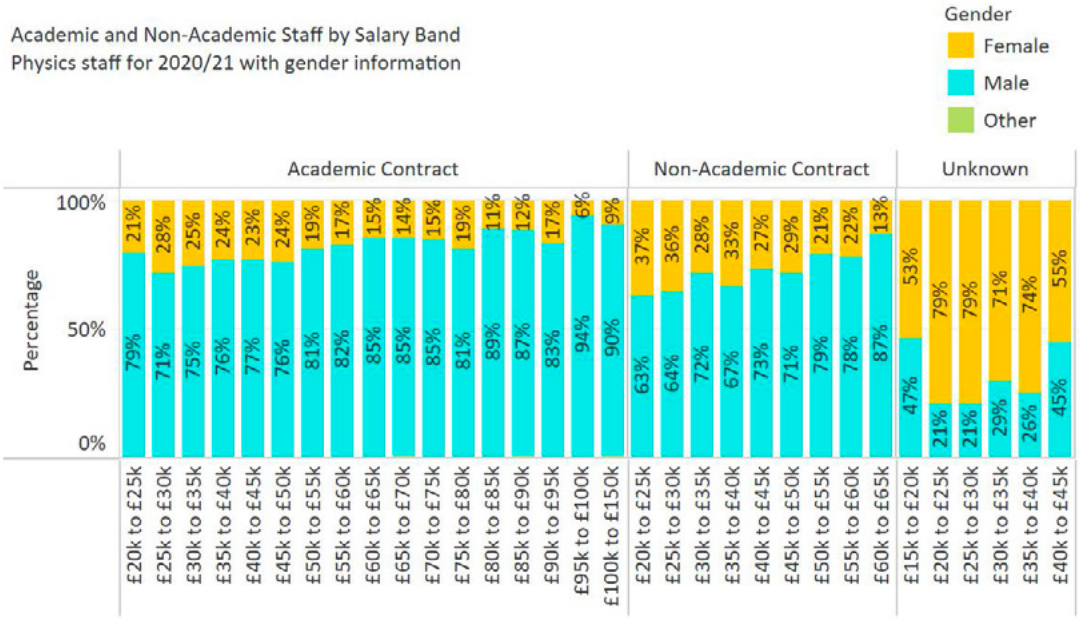

***Figure* 19:** *HESA data for Physics staff by academic and non-academic contracts by salary band and gender in 2020/21*

Figure 20 shows the salary band distribution for academic and non-academic Physics staff by ethnicity. For academic contracts, there are fewer non-White staff members in the higher salary bands. The greatest number of Asian Physics academic staff are in the £35k to £40k salary band. There is a decrease in the number of Asian Physics academic staff in the next salary band and the number remains low in all consecutive salary bands.

For non-academic contracts, the number of staff is lower than for academic contracts. Most staff for non-academic Physics contracts identify as White. Though there is less of a spread of salaries for non-academic Physics staff, there are few non-White staff members in the higher salary bands.

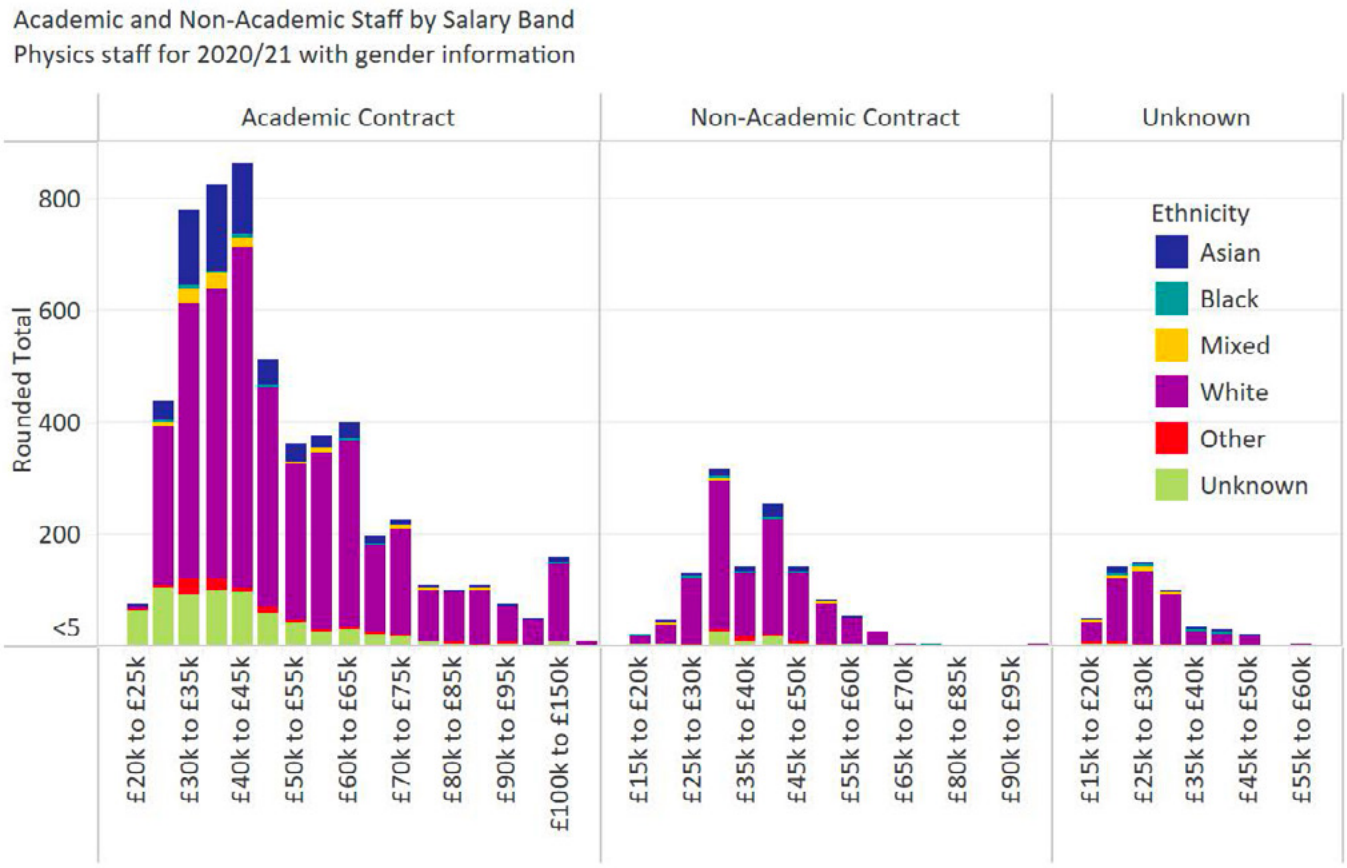

Figure 20: *HESA data for Physics staff by academic and non-academic contracts for salary bands by ethnicity in 2020/21.*

Academic Staff

Academic staff are those on academic contracts. In this section a more detailed analysis of those staff is presented.

The following codes are used for the contract category:

- A0 to C2: Senior management
- D and E: Head of Schools/Senior Function head
- F1: Professor
- F2: Function head
- I0: Non-Academic section manager, Senior/principal lecturer, Reader, Principal Research fellow
- J0: Team Leader (Professional, Technical, Administrative), Lecturer, Senior Lecturer, Senior Research Fellow
- K0: Senior Professional (Technical), Lecturer, Research fellow, Researcher (senior research assistant), Teaching fellow
- L0: Senior Administrative staff (Professional/technical) Research assistant, Teaching assistant
- M0: Assistant professional staff, Administrative staff
- N0: Junior Administrative Staff, Clerical Staff, Technician/Craftsmen, Operative
- O0: Routine task provider
- P0: Simple task provider

Gender

Table 22 shows the contract level breakdown for academic staff in selected STEM subjects. For Physics, K0 Senior Professional (Technical), Lecturer, Research fellow, Researcher (senior research assistant), Teaching fellow is the contract level with most female staff members in it.

		2020/21											
Discipline	Gender	A0 to C2	D and E	F1	F2	I0	J0	K0	L0	M0	N0	O0	P0
Physics	Female	5	10	135		135	210	450	200	35	20		
	Male	10	55	855		680	650	1,540	525	130	45		
	Other			<5		5	<5	5	<5				
Biosciences	Female	25	105	415		725	1,415	2,755	1,045	395	25	<5	
	Male	30	200	1,260		1,170	1,525	2,530	780	215	10		<5
	Other		<5	5		<5	<5	5	5				
Chemistry	Female	5	10	85		125	200	560	200	110	<5	<5	
	Male	10	45	530		415	485	1,040	315	100	<5		
	Other			<5			<5	<5	<5				
Electrical, electronic & computer engineering	Female	<5	10	55		75	175	300	145	30			
	Male	15	65	505	<5	615	870	1,320	585	95	5		
	Other					<5		<5	<5				
IT, systems sciences & computer software engineering	Female	5	35	125		250	460	715	360	75	10		
	Male	20	115	690		885	1,620	1,815	1,140	205	60		<5
	Other		<5	<5		<5	5	5	5				
Mathematics	Female	<5	15	110		195	255	405	260	25	<5		
	Male	10	60	785		775	750	960	540	55			
	Other		<5	5		<5	5	5	<5				

***Figure* 22:** *HESA data for selected STEM subjects academic staff in 2020/21 (<5 represent 1 or 2 staff. Blank cells represent no staff at all.)*

Figure 21 shows the proportion of male and female Physics staff for each academic contract level in 2020/21. Female members of staff make up between 13% and 28% for each contract level with 23 or more staff. The contract level with the highest percentage of female staff is N0 Junior Administrative Staff, Clerical Staff, Technician/Craftsmen, Operative and L0, Senior Administrative staff (Professional/technical) Research assistant, Teaching assistant (28%).

Figure 21: *HESA data for academic Physics staff in 2020/21.*

Figure 22 shows the proportion of academic female staff in Physics over the period from 2012/13 to 2020/21, grouped by contract seniority. The most senior contract levels (from A0 to J0) are categorised as senior academic staff for the purposes of this analysis, while all other contract levels are categorised as other academic staff. The proportion of academic females in senior academic staff was lower than it was in the other academic group for the entire time period considered, however the proportion of senior staff who are female is increasing at a faster rate than the proportion of less-senior staff who are female.

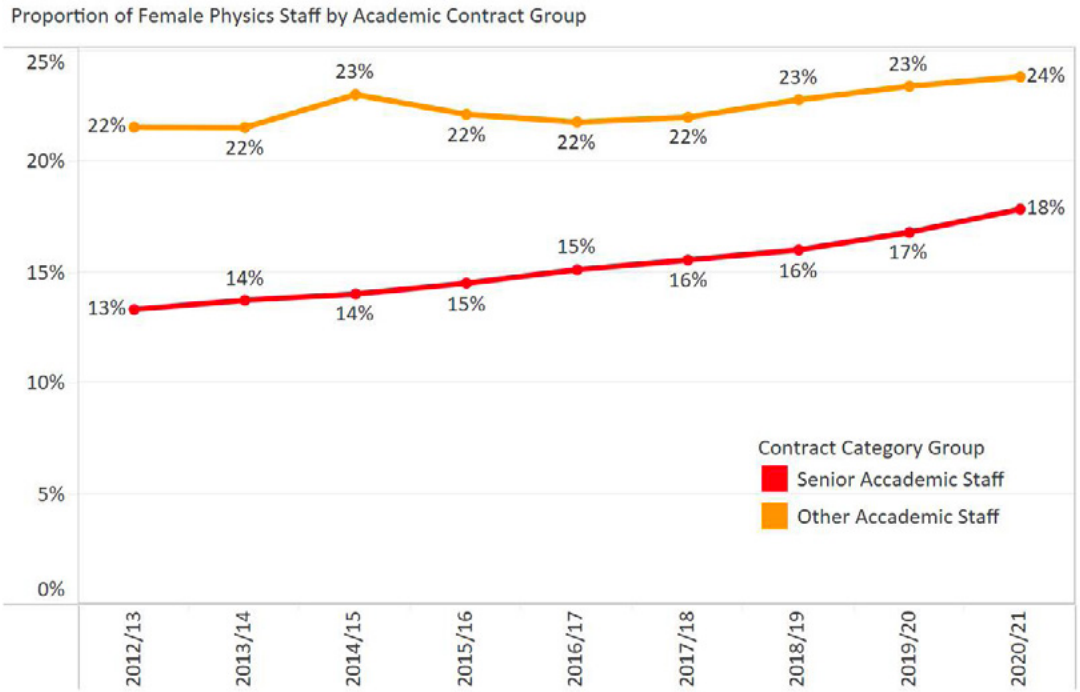

Figure 22: *HESA data for female academic Physics staff by contract category group.*

Ethnicity

Table 23 shows the detailed ethnicity breakdown of academic staff across selected STEM subjects. Across the selected subjects, there are a number of contracts where there are very few or any members of staff**.**

		2020/21											
Discipline	Ethnicity	A0 to C2	D and E	F1	F2	I0	J0	K0	L0	M0	N0	O0	P0
Physics	Asian or Asian British - Bangladeshi			<5		<5		5					
	Asian or Asian British - Indian		<5	20		20	20	140	25	5	<5		
	Asian or Asian British - Pakistani		<5			<5	5	20	<5				
	Other Asian background			10		10	15	65	20	<5			
	Black or Black British - African		<5	<5			5	15	5				
	Black or Black British - Caribbean					<5	<5	<5					
	Other Black background					<5		5					
	Chinese	<5		15		30	25	130	30	5	<5		
	Mixed		<5	15		15	15	60	25	5	<5		
	White	15	55	835		670	665	1,275	450	65	55		
	Other			15		15	10	45	20	5			
	Unknown	<5	5	75		55	95	235	145	80	5		
Biosciences	Asian or Asian British - Bangladeshi		<5	<5		5	10	20	5	5			
	Asian or Asian British - Indian	<5	10	25		50	95	315	70	10	<5		
	Asian or Asian British - Pakistani		<5	5		10	30	40	15	<5			
	Other Asian background	<5	5	10		20	45	160	50	15			
	Black or Black British - African	<5	<5	5		5	35	105	35	10	<5		
	Black or Black British - Caribbean		<5	<5		5	10	10	5	<5			
	Other Black background					5	5	15	5	<5			
	Chinese		<5	20		25	85	205	55	20	<5		
	Mixed	<5	<5	30		20	70	160	55	20	<5		
	White	45	265	1,425		1,635	2,315	3,675	1,240	395	30	<5	<5
	Other		5	20		25	60	145	50	15	<5		
	Unknown	10	15	140		90	190	445	250	115	5	<5	
Chemistry	Asian or Asian British - Bangladeshi			<5		<5	<5	10	<5	<5			
	Asian or Asian British - Indian		<5	10		10	20	115	20	5			
	Asian or Asian British - Pakistani			5		<5	5	15	5	<5			
	Other Asian background			5		10	10	45	20	5			
	Black or Black British - African			<5		<5	<5	15	10	5			
	Black or Black British - Caribbean		<5			<5		<5	<5	<5			
	Other Black background		<5					<5	<5	<5			
	Chinese			15		20	30	160	35	15			
	Mixed			<5		5	15	40	15	5			
	White	15	55	535		460	545	1,000	325	100	<5	<5	
	Other			5		5	10	50	15	5	<5		
	Unknown		<5	40		30	45	140	65	70			
Electrical, electronic & computer engineering	Asian or Asian British - Bangladeshi		<5	<5		<5	15	15	15	<5			
	Asian or Asian British - Indian	<5	5	15		20	50	125	40	5			
	Asian or Asian British - Pakistani		<5	<5		10	25	50	30	<5			
	Other Asian background		<5	20	<5	25	70	105	40	<5			
	Black or Black British - African		<5	5		<5	20	45	15	5			
	Black or Black British - Caribbean					<5	<5		5	<5	<5		
	Other Black background						<5	<5					
	Chinese		5	70		75	125	235	105	10			
	Mixed			5		5	20	45	25	5			
	White	15	60	380		480	585	725	355	40	5		
	Other	<5	5	20		20	50	110	35	5			
	Unknown		<5	35		55	80	160	70	55			
IT, systems sciences & computer software engineering	Asian or Asian British - Bangladeshi		<5	5		5	15	20	15				
	Asian or Asian British - Indian	5	10	20		30	90	120	65	10	<5		
	Asian or Asian British - Pakistani		5	5		10	60	60	35	5	<5		
	Other Asian background		5	20		25	80	120	65	5	5		
	Black or Black British - African		<5			10	40	105	45	10	5		
	Black or Black British - Caribbean					5	5	10	5	<5			
	Other Black background			<5		<5	<5	<5	5				
	Chinese	<5	10	75		85	165	170	120	15	10		
	Mixed		<5	15		20	60	60	30	10	<5		
	White	25	115	580		840	1,360	1,500	770	100	45		<5
	Other		5	25		40	85	140	60	5	<5		
	Unknown	<5	5	70		70	125	225	300	120	5		
Mathematics	Asian or Asian British - Bangladeshi			<5		<5	<5	<5	<5	<5			
	Asian or Asian British - Indian	<5	<5	15		30	30	40	20	<5			
	Asian or Asian British - Pakistani					<5	5	10	5				
	Other Asian background		<5	5		10	30	45	30	<5	<5		
	Black or Black British - African		<5	<5		<5	10	15	15	<5			
	Black or Black British - Caribbean						<5	<5	<5				
	Other Black background		<5			<5	<5	<5	<5				
	Chinese	<5		40		35	60	80	55	5			
	Mixed	<5		5		15	20	35	30	5			
	White	5	65	730		795	750	970	420	35			
	Other		<5	15		20	20	35	25	<5			
	Unknown	5	5	85		60	80	140	200	30			

Table 23: *Detailed breakdown of selected STEM subjects' academic staff by ethnicity for 2020/21. (<5 represent 1 or 2 staff. Blank cells represent no staff at all.)*

Figure 23 shows the total number of Physics staff for each academic contract level by grouped ethnicity. The ethnicity with the highest representation is White across all contract levels. The ethnicity with the second highest number of staff across academic contract levels is Asian.

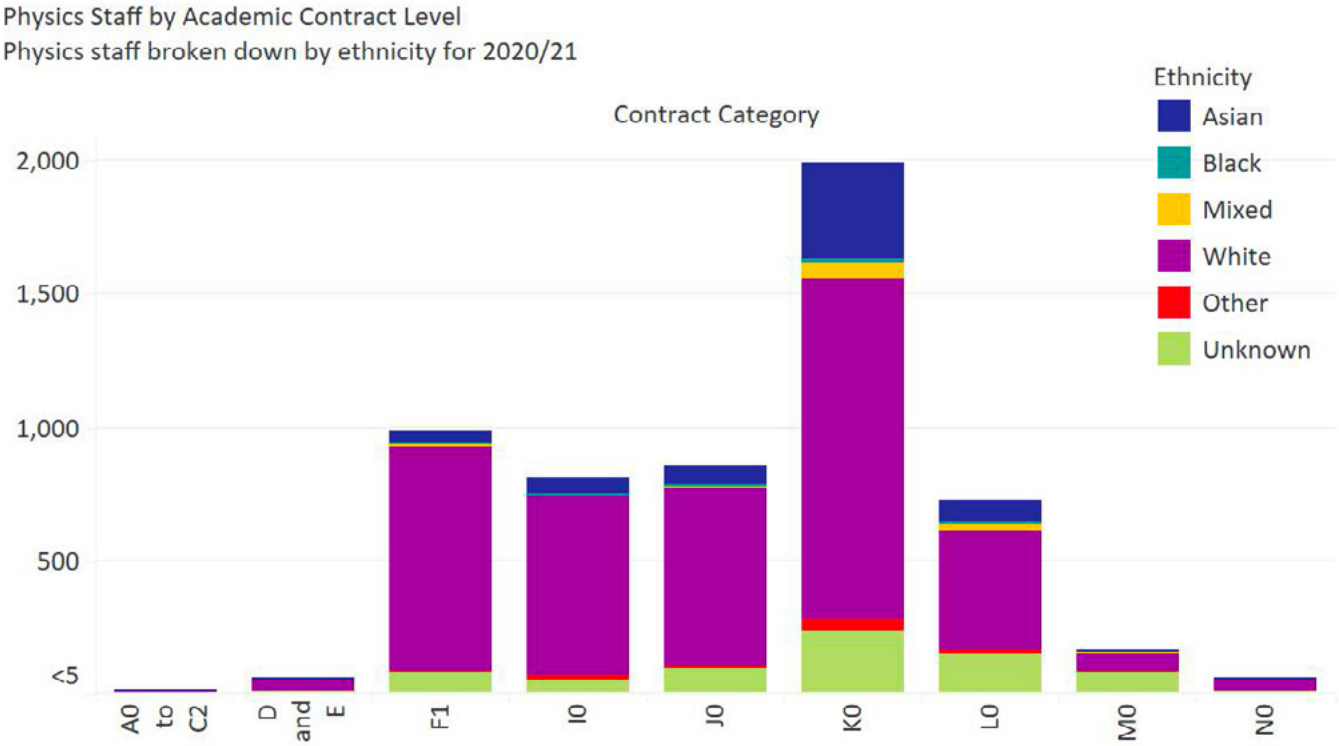

***Figure* 23:** *HESA data for academic Physics staff for the academic year 2020/21.*

Professors

Presented in this section is an analysis of professors in higher education institutions. Professors are defined to be those staff who fall under the F1 Professor contract category.

Table 24 and **table 25** show the total number and the year-on-year changes of professors for each subject considered. The total number of Physics professors has increased by 40% from 2012/13 to 2020/21, a greater increase in the number of professors than in any other selected STEM subject. In 2019/20 and 2020/21 the number of professors in Physics increased by 10% and 3% respectively. For both years, the proportion increase in physics professors is greater than any other STEM subject considered and more than all academic and non-academic contracts (table 13).

Discipline	Academic Year								
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Physics	710	765	800	810	835	850	875	960	990
Biosciences	1,255	1,400	1,400	1,415	1,455	1,495	1,520	1,650	1,680
Chemistry	495	535	520	550	585	590	600	630	615
Electrical, electronic & computer engineering	465	485	485	485	485	505	515	555	560
IT, systems sciences & computer software engineering	590	640	625	640	695	725	755	805	815
Mathematics	730	795	770	795	815	840	865	910	900

Table 24: *HESA data for professors from 2012/13 to 2020/21.*

Discipline	Academic Year									
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
Physics	710	8%	4%	1%	3%	2%	3%	10%	3%	40%
Biosciences	1,255	12%	0%	1%	3%	3%	1%	9%	2%	34%
Chemistry	495	8%	-2%	5%	6%	1%	2%	5%	-2%	25%
Electrical, electronic & computer engineering	465	4%	0%	0%	0%	5%	2%	8%	1%	21%
IT, systems sciences & computer software engineering	590	9%	-2%	3%	8%	4%	4%	6%	2%	38%
Mathematics	730	9%	-4%	3%	3%	3%	3%	5%	-1%	23%

Table 25: *HESA data for the percentage change from the previous year in professors for 2012/13 to 2020/21.*

Gender

Figure 24 shows that 14% of Physics professors, in 2020/21, are female. This is significantly lower than for all Physics staff; 26% of all Physics staff are female (Figure 1) and 21% of Physics academic staff are female (Figure 13).

This trend is also seen in all other academic disciplines. Females make up 29% of professors in all other academic disciplines compared to 55% of all staff in all other academic disciplines (Figure 1) and 48% of academic staff in all other academic disciplines (Figure 13).

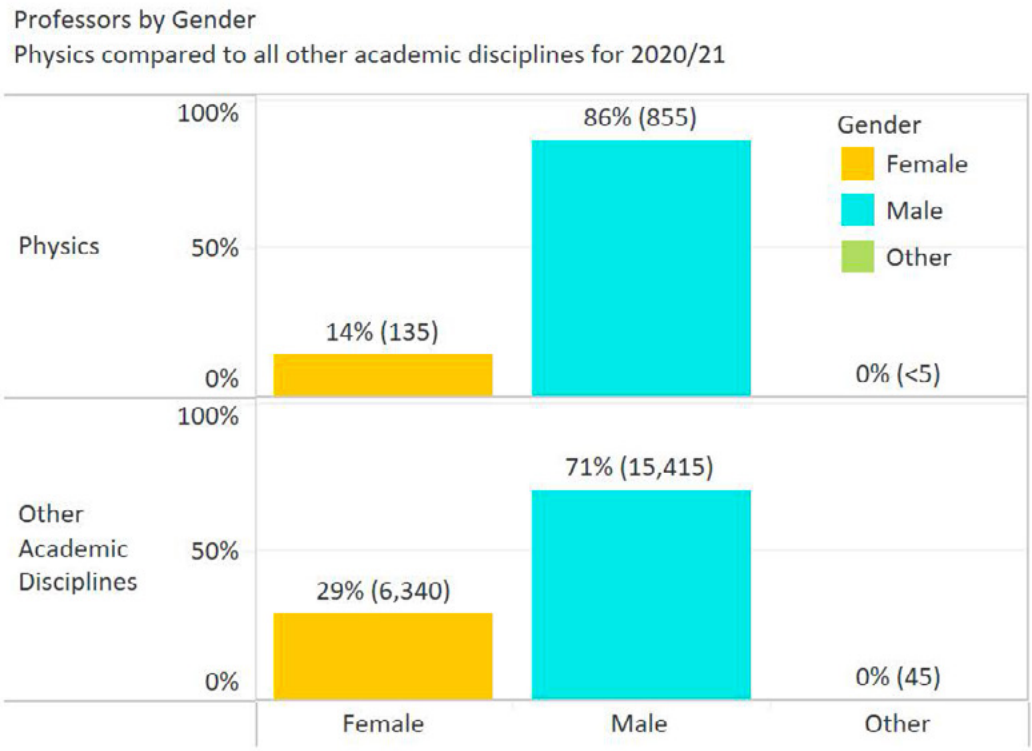

Figure 24: *HESA data for professors in 2020/21 for physics and all other academic disciplines.*

Figure 25 shows that since 2012/13, the proportion of Physics professors who are female has increased from 8% to 14%. This is comparable to the increase of female staff seen in Figure 2 and Figure 14. The opposite trend is true for male professors who have decreased from 92% to 86%.

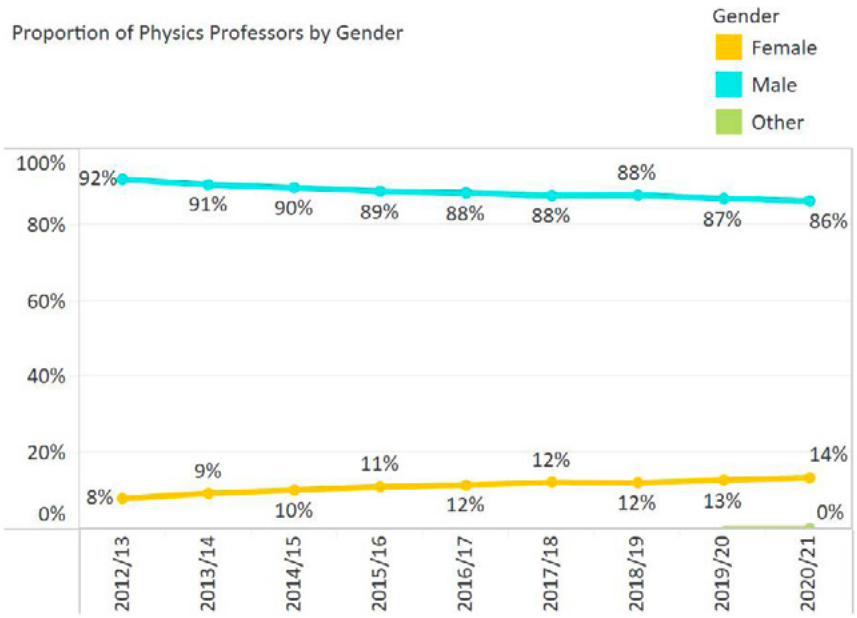

Figure 25: *HESA data showing the change in percentage of Physics professors by gender from 2012/13 to 2020/21.*

The table below breaks down the number of professors by gender by subject. The number of female professors is far lower than the number of male professors for each subject. Physics has a similar number of female professors as IT, systems sciences & computer software engineering and Mathematics. Biosciences has more female professors than Physics, IT, systems sciences & computer software engineering and Mathematics combined, however, Biosciences does have a greater number of professors and staff overall.

		Academic Year								
Gender	Discipline	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Female	Physics	55	70	80	90	95	105	105	125	135
	Biosciences	215	250	255	270	300	325	345	380	415
	Chemistry	40	45	45	55	60	65	70	85	85
	Electrical, electronic & computer engineering	30	30	35	35	40	40	45	45	55
	IT, systems sciences & computer software engineering	75	85	80	85	100	105	115	125	125
	Mathematics	55	70	65	75	85	95	100	110	110
Male	Physics	650	695	720	720	735	745	770	835	855
	Biosciences	1,035	1,150	1,145	1,140	1,155	1,170	1,175	1,265	1,260
	Chemistry	450	485	475	495	525	525	530	545	530
	Electrical, electronic & computer engineering	435	455	450	450	445	465	475	510	505
	IT, systems sciences & computer software engineering	520	560	545	560	595	620	640	680	695
	Mathematics	675	730	700	715	730	740	765	795	785
Other	Physics								<5	<5
	Biosciences						<5	<5	5	5
	Chemistry								<5	<5
	IT, systems sciences & computer software engineering							<5	<5	<5
	Mathematics							<5	5	5

Table 26: *The total number of professors by subject from 2012/13 to 2020/21 by gender. (<5 represent 1 or 2 staff. Blank cells represent no staff.)*

Table 27 shows the year-on-year change in the number of professors for each subject by gender. From 2012/13 to 2020/21, the number of female professors in Physics increased by 134%. In fact, Physics saw the largest percentage increase in the number of female professors when compared to other selected STEM subjects (other subjects saw an increase in the range of 69-105%).

The increase in male professors from 2012/13 to 2020/21 ranges from 16% to 34%. IT, systems sciences & computer software engineering saw an increase of 34% in male professors, a larger increase than Physics saw (31%). Other than this, Physics saw the largest increase in male professors when compared to other selected STEM subjects.

		Academic Year									
Gender	Discipline	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
Female	Physics	55	27%	14%	10%	7%	9%	2%	16%	8%	134%
	Biosciences	215	16%	1%	7%	9%	9%	6%	11%	9%	92%
	Chemistry	40	14%	-3%	22%	5%	9%	10%	18%	2%	105%
	Electrical, electronic & computer engineering	30	5%	7%	5%	11%	7%	6%	8%	11%	78%
	IT, systems sciences & computer software engineering	75	16%	-5%	5%	17%	8%	8%	6%	0%	69%
	Mathematics	55	23%	-4%	16%	12%	13%	2%	11%	2%	100%
Male	Physics	650	7%	3%	0%	2%	1%	3%	9%	2%	31%
	Biosciences	1,035	11%	0%	0%	1%	1%	0%	8%	0%	21%
	Chemistry	450	8%	-2%	4%	6%	1%	1%	3%	-3%	17%
	Electrical, electronic & computer engineering	435	4%	0%	0%	-1%	4%	2%	7%	0%	17%
	IT, systems sciences & computer software engineering	520	8%	-2%	2%	7%	4%	3%	6%	2%	34%
	Mathematics	675	8%	-4%	2%	2%	2%	3%	4%	-2%	16%

Table 27: *HESA data for the percentage change from the previous year in professors by gender for 2012/13 to 2020/21.*

Nationality

The nationality of most professors in Physics (65%) is recorded as being from the UK, but this percentage is lower than in all other academic disciplines (75%) in 2020/21. Physics has a higher percentage of professors from the EU than all other academic disciplines on average with 23% compared to 15% respectively. The proportion of Physics professors from non-EU, non-UK countries is similar to the proportion of professors in all other academic disciplines at 11% and 9% respectively.

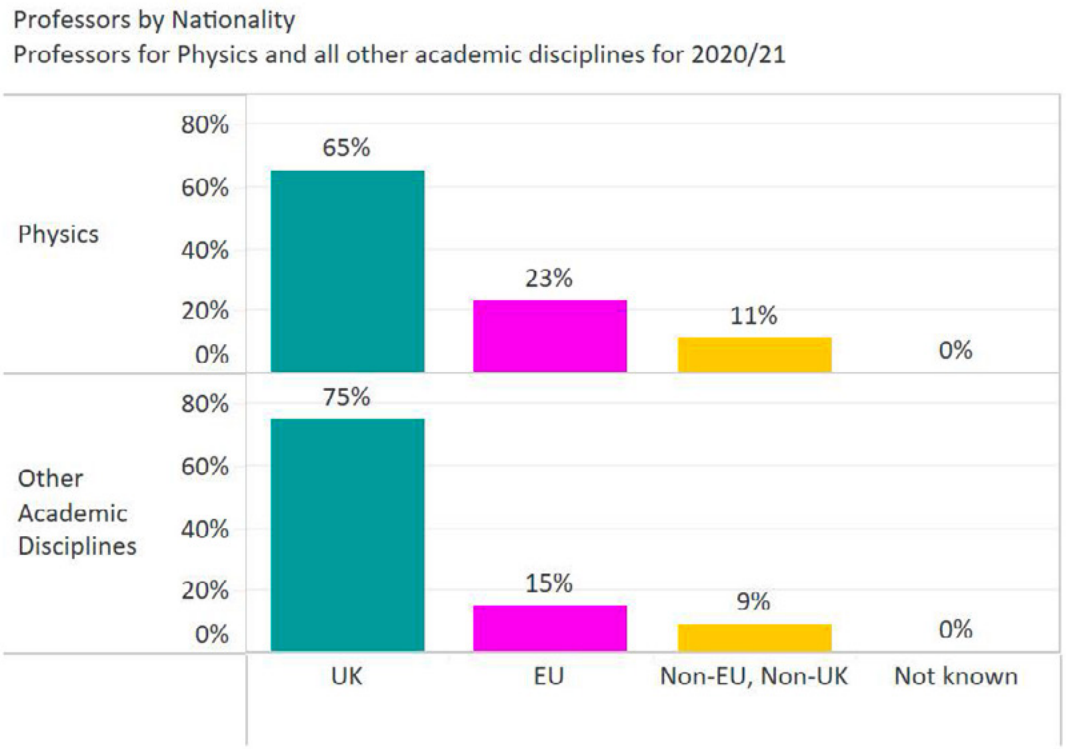

Figure 26: *HESA data for professors for Physics and all other academic disciplines by nationality for 2020/21.*

Figure 27 shows how the proportion of Physics professors by nationality has changed from 2012/13 to 2020/21. The proportion of professors from EU countries have increased by 8% but across the same time period the proportion of Physics professors from non-EU, non-UK countries has increased only by 1%.

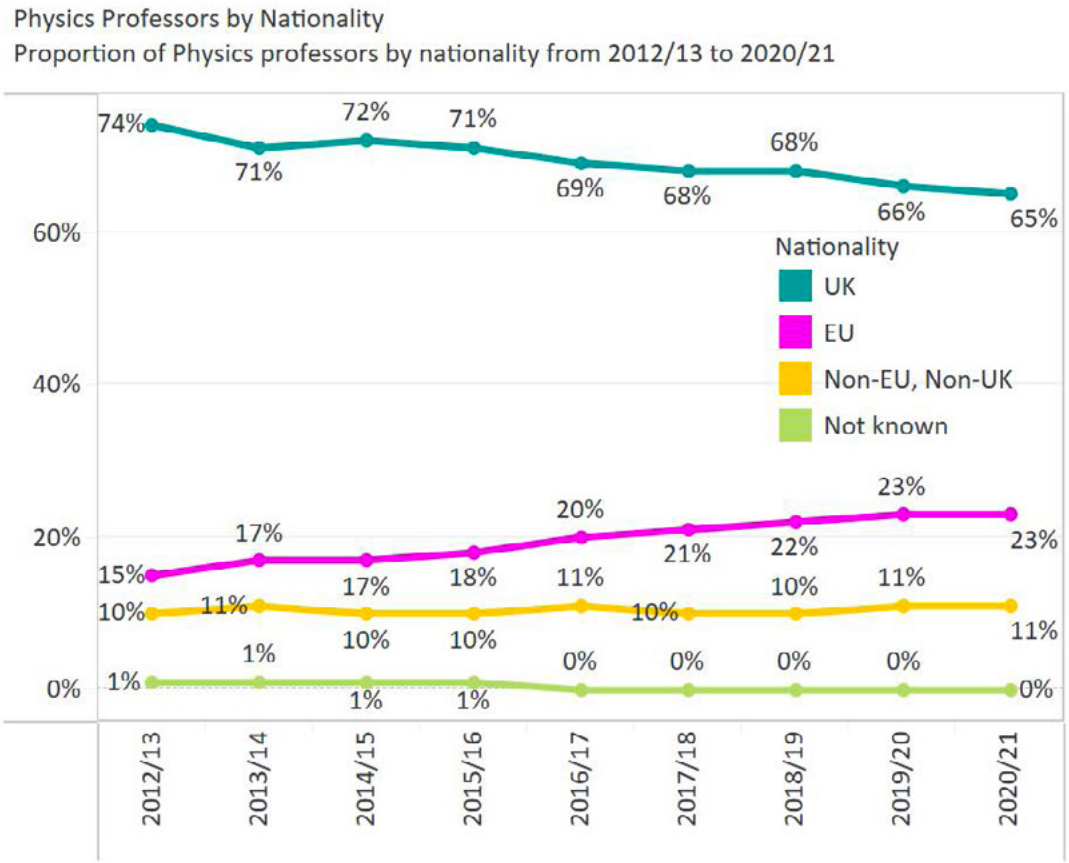

Figure 27: *HESA data for Physics professors by nationality from 2012/13 to 2020/21.*

As seen in previous sections, Biosciences has the greatest number of staff members. Biosciences also has the greatest number of professors, the majority of whom are from the UK. Despite the fact that Biosciences has so many more professors in total, the number of professors from the EU is similar to that for Physics, and also for Mathematics. For professors from non-EU, non-UK countries, Mathematics has the greatest number, closely followed by Biosciences, IT, systems sciences & computer software engineering and then Physics.

Nationality	Discipline	Academic Year								
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
UK	Physics	525	550	575	575	580	580	595	635	650
	Biosciences	1,045	1,130	1,130	1,145	1,170	1,205	1,205	1,295	1,300
	Chemistry	410	435	420	445	470	470	480	505	500
	Electrical, electronic & computer engineering	370	375	370	370	370	380	385	400	395
	IT, systems sciences & computer software engineering	420	445	435	430	465	480	490	510	520
	Mathematics	500	520	500	515	525	540	545	560	545
EU	Physics	110	130	135	150	165	180	190	215	225
	Biosciences	125	165	170	160	180	185	205	230	245
	Chemistry	45	55	60	70	75	80	80	80	80
	Electrical, electronic & computer engineering	40	55	55	65	65	70	75	90	95
	IT, systems sciences & computer software engineering	90	105	110	125	140	150	155	175	175
	Mathematics	135	155	150	160	175	180	190	210	215
Non-EU, Non-UK	Physics	70	80	80	80	90	90	85	100	110
	Biosciences	70	85	90	100	95	100	105	120	125
	Chemistry	30	40	35	35	35	40	40	45	35
	Electrical, electronic & computer engineering	50	55	55	50	50	55	60	70	70
	IT, systems sciences & computer software engineering	75	85	75	80	90	85	105	110	115
	Mathematics	90	110	110	115	110	115	125	135	130
Not known	Physics	5	10	5	5	5	<5	<5	5	5
	Biosciences	15	20	10	10	5	5	5	5	5
	Chemistry	5	5	5	5	<5	<5	<5	<5	<5
	Electrical, electronic & computer engineering	<5	5	<5						
	IT, systems sciences & computer software engineering	5	5	5	5	5	5	5	5	5
	Mathematics	5	10	10	5	5	5	5	5	5

Table 28: *HESA data for professors by nationality from 2012/13 to 2020/21. (<5 represent 1 or 2 staff. Blank cells represent no staff at all.)*

The proportion of professors from the three nationality groups in the table below have varied over time. The proportion of professors who are from the UK has decreased over the time period looked at for all selected subjects, with the proportion of Physics professors decreasing from 74% to 65%.

The proportion of Physics professors from the EU was 15% in 2012/13, and for Mathematics this proportion was 19%, the highest proportion out of all subjects considered. By 2020/21, the proportion for Physics and Mathematics subjects is 23% and 24% respectively.

The proportion of Physics professors from non-EU, non-UK countries has oscillated between 10-11%. All other subjects also saw a small increase in the proportion of professors between 0% and 3%.

Nationality	Discipline	Academic Year								
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
UK	Physics	74%	71%	72%	71%	69%	68%	68%	66%	65%
	Biosciences	83%	81%	81%	81%	81%	81%	79%	78%	78%
	Chemistry	83%	81%	81%	81%	81%	79%	80%	80%	81%
	Electrical, electronic & computer engineering	79%	77%	76%	76%	76%	75%	74%	72%	71%
	IT, systems sciences & computer software engineering	71%	70%	69%	67%	67%	66%	65%	64%	64%
	Mathematics	68%	65%	65%	65%	65%	64%	63%	61%	61%
EU	Physics	15%	17%	17%	18%	20%	21%	22%	23%	23%
	Biosciences	10%	12%	12%	11%	12%	12%	13%	14%	15%
	Chemistry	10%	11%	12%	12%	13%	14%	13%	13%	13%
	Electrical, electronic & computer engineering	9%	11%	12%	13%	14%	14%	14%	16%	17%
	IT, systems sciences & computer software engineering	15%	17%	18%	20%	20%	21%	21%	22%	21%
	Mathematics	19%	19%	20%	20%	21%	22%	22%	23%	24%
Non-EU, Non-UK	Physics	10%	11%	10%	10%	11%	10%	10%	11%	11%
	Biosciences	6%	6%	7%	7%	7%	7%	7%	7%	8%
	Chemistry	6%	7%	7%	6%	6%	7%	7%	7%	6%
	Electrical, electronic & computer engineering	11%	11%	12%	11%	10%	10%	12%	13%	12%
	IT, systems sciences & computer software engineering	13%	13%	12%	13%	13%	12%	14%	14%	14%
	Mathematics	12%	14%	14%	15%	14%	14%	14%	15%	15%
Not known	Physics	1%	1%	1%	1%	0%	0%	0%	0%	0%
	Biosciences	1%	1%	1%	1%	0%	0%	0%	0%	0%
	Chemistry	1%	1%	1%	1%	0%	0%	0%	0%	0%
	Electrical, electronic & computer engineering	0%	1%	0%						
	IT, systems sciences & computer software engineering	1%	1%	1%	1%	1%	1%	1%	1%	1%
	Mathematics	1%	2%	1%	1%	0%	0%	1%	1%	1%

Table 29: *HESA data for professors by proportion of nationality from 2012/13 to 2020/21.*

Across all selected STEM subjects, and for all nationalities, the total number of professors has increased from 2012/13 to 2020/21. Over this time period, Physics professors from the UK, EU and non-EU, non-UK countries increased by 24%, 108% and 59% respectively.

Across all selected STEM subjects, the increase in professors from the UK was less than from both the EU and non-EU, non-UK nationalities with the only exception of Chemistry from non-EU, non-UK that increased only by 14%. The smallest increase in professors from the UK was for Electrical, electronic & computer engineering (7%) and the largest increase was for Biosciences and IT, systems sciences & computer software engineering by 24%.

Examining professors from EU countries for each selected STEM subject, Mathematics saw the smallest increase of 57% whereas Electrical, electronic & computer engineering saw the largest increase of 129%. Finally, Biosciences saw the largest increase in professors from non-EU, non-UK countries of 81% and Electrical, electronic & computer engineering saw the smallest increase (30%).

Nationality	Discipline	Academic Year									
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
UK	Physics	525	5%	5%	0%	0%	0%	3%	7%	2%	24%
	Biosciences	1,045	8%	0%	1%	2%	3%	0%	7%	1%	24%
	Chemistry	410	6%	-3%	6%	5%	0%	2%	5%	-1%	22%
	Electrical, electronic & computer engineering	370	2%	-1%	0%	0%	3%	1%	4%	-1%	7%
	IT, systems sciences & computer software engineering	420	6%	-3%	-1%	8%	4%	2%	4%	2%	24%
	Mathematics	500	4%	-4%	3%	3%	2%	2%	2%	-2%	10%
EU	Physics	110	19%	5%	9%	10%	9%	7%	14%	4%	108%
	Biosciences	125	32%	3%	-4%	10%	4%	9%	13%	7%	98%
	Chemistry	45	21%	9%	9%	12%	6%	-2%	3%	-3%	67%
	Electrical, electronic & computer engineering	40	26%	7%	14%	4%	8%	4%	17%	9%	129%
	IT, systems sciences & computer software engineering	90	20%	4%	13%	9%	10%	2%	12%	1%	96%
	Mathematics	135	13%	-2%	6%	9%	4%	5%	12%	1%	57%
Non-EU, Non-UK	Physics	70	16%	1%	-4%	11%	1%	-2%	17%	10%	59%
	Biosciences	70	24%	5%	10%	-4%	4%	5%	15%	4%	81%
	Chemistry	30	24%	-9%	-7%	3%	17%	0%	11%	-18%	14%
	Electrical, electronic & computer engineering	50	3%	6%	-9%	-7%	10%	13%	17%	-3%	30%
	IT, systems sciences & computer software engineering	75	11%	-9%	8%	8%	-2%	19%	9%	2%	51%
	Mathematics	90	23%	-1%	5%	-4%	4%	7%	8%	-1%	46%

Table 30: *HESA data for the percentage change from the previous year for professors by nationality for 2012/13 to 2020/21.*

Ethnicity

Table 31 shows the detailed breakdown of the ethnicity of professors in selected STEM subjects for 2020/21. There are ethnicities that are blank, representing that there are no professors of that ethnicity for that subject. As mentioned before, <5 indicate that there are 2 or fewer people. There are no Asian or Asian British – Pakistani, Black or Black British – Caribbean and Other Black background Physics professors. Asian or Asian British – Bangladeshi and Black or Black British - African have two or fewer Physics professors.

Discipline	2020/21											
	Asian or Asian British - Bangladeshi	Asian or Asian British - Indian	Asian or Asian British - Pakistani	Other Asian background	Black or Black British - African	Black or Black British - Caribbean	Other Black background	Chinese	Mixed	White	Other	Unknown
Physics	<5	20		10	<5			15	15	835	15	75
Biosciences	<5	25	5	10	5	<5		20	30	1,430	20	140
Chemistry	<5	10	5	5	<5			15	<5	535	5	40
Electrical, electronic & computer engineering	<5	15	<5	20	5			70	5	380	20	40
IT, systems sciences & computer software engineering	5	20	5	20			<5	75	15	580	25	70
Mathematics	<5	15		5	<5			40	5	730	15	85

Table 31: *Detailed ethnic breakdown for professors in selected STEM subjects in 2020/21. (<5 represent 1 or 2 staff. Blank cells represent no staff at all.)*

As stated in other sections, according to the 2011 census, Black ethnicities represent 3% of the population of England and Wales. Figure 28 shows the proportion of professors by ethnicity for Physic and other academic disciplines. The values in parenthesis represent this proportion excluding the unknown ethnicity. Figure 28 shows that for Physics and all other academic disciplines Black ethnicities are underrepresented in those members of staff with professorships.

According to the census, 8% of the UK population are Asian. For professors for all academic disciplines, excluding Physics, Asian ethnicities are well represented. However, for Physics, despite Asian ethnicities being overrepresented in all academic staff (figure 16), they are underrepresented among professors (5%).

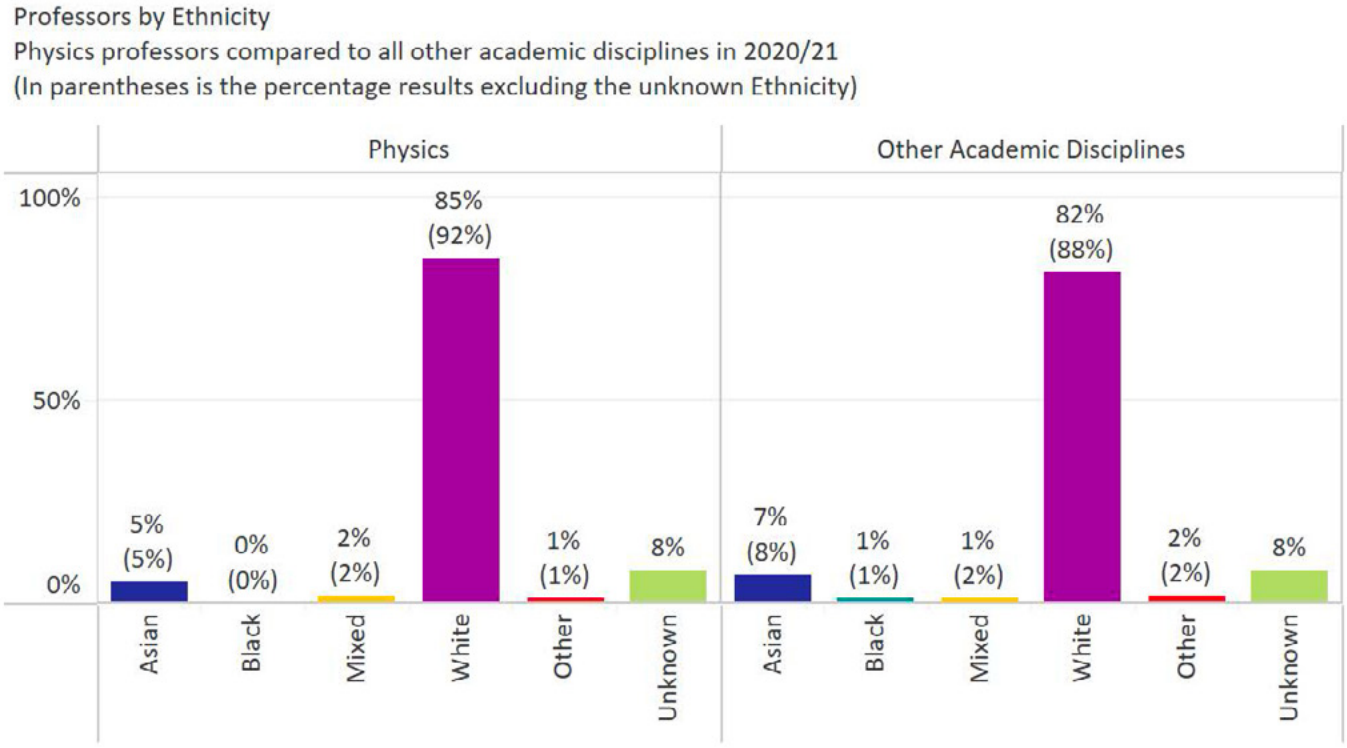

Figure 28: *HESA data for professors by ethnicity for Physics compared to all other academic discplines in 2020/21.)*

Despite the total number of Physics professors increasing between 2012/13 to 2020/21, Table shows that there has been no change in the number of Black professors and that it has remained at <5. This is also observed in Chemistry, IT, systems sciences & computer software engineering and Mathematics. In the other subjects, the rounded number of Black professors has increased from <5 to 5.

Discipline	Ethnicity	Academic Year								
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Physics	Asian	30	35	35	35	40	40	35	40	50
	Black	<5	<5	<5	<5	<5	<5	<5	<5	<5
	Mixed	5	5	5	10	10	10	10	15	15
	White	605	650	680	685	715	725	745	810	835
	Other	<5	10	10	10	10	10	10	15	15
	Unknown	65	65	65	65	60	65	75	80	75
Biosciences	Asian	40	40	40	40	40	45	50	50	60
	Black	<5	5	5	5	5	5	5	5	5
	Mixed	10	15	10	10	15	20	20	30	30
	White	1,110	1,210	1,215	1,235	1,255	1,290	1,310	1,415	1,430
	Other	10	15	15	15	20	15	15	20	20
	Unknown	85	120	115	105	115	125	115	125	140
Chemistry	Asian	15	20	20	20	25	25	30	35	35
	Black	<5	<5	<5	<5	<5	<5	<5	<5	<5
	Mixed					<5	<5	<5	<5	<5
	White	440	470	455	480	505	515	520	545	535
	Other	<5	<5	<5	<5	5	5	5	5	5
	Unknown	35	40	45	45	50	45	45	45	40
Electrical, electronic & computer engineering	Asian	80	90	90	90	90	95	100	110	110
	Black	<5	<5	<5	<5	<5	<5	5	5	5
	Mixed	5	5	5	5	5	5	5	5	5
	White	325	340	335	335	340	355	355	380	380
	Other	10	10	15	15	15	15	15	20	20
	Unknown	40	40	40	40	30	30	35	35	40
IT, systems sciences & computer software engineering	Asian	75	80	80	85	90	100	115	120	125
	Black	<5		<5	<5	<5	<5	<5	<5	<5
	Mixed	5	5	5	10	10	10	10	15	15
	White	460	500	490	500	530	540	545	575	580
	Other	10	10	10	10	15	20	20	20	25
	Unknown	40	45	40	40	50	55	60	75	70
Mathematics	Asian	30	40	40	45	45	50	50	60	60
	Black	<5	<5	<5	5	5	5	5	5	<5
	Mixed	5	5	5	5	5	5	5	5	5
	White	610	650	630	655	665	680	710	740	730
	Other	10	15	15	15	15	15	15	15	15
	Unknown	75	90	75	70	80	85	85	85	85

Table 32: *HESA data by ethnicity of professors from 2012/13 to 2020/21. (<5 represent 1 or 2 staff. Blank cells represent no staff at all.)*

The number of Asian professors in Physics increased by 51%, reaching a total number of 50 professors in 2020/21. Chemistry saw an increase from 15 to 35 in the number of Asian professors during the same time period (approximately 133% increase).

Physics saw the largest increase in White professors (38%) than any other subject. Other subjects saw the number of White professors increase between 17-29%.

Discipline	Ethnicity	Academic Year									
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total Change
Physics	Asian	30	7%	7%	1%	5%	-2%	-5%	18%	13%	51%
	White	605	8%	4%	1%	4%	2%	3%	9%	4%	38%
	Unknown	65	2%	1%	-4%	-6%	6%	14%	8%	-4%	16%
Biosciences	Asian	40	3%	1%	3%	-1%	10%	9%	4%	12%	49%
	White	1,110	9%	0%	2%	2%	3%	2%	8%	1%	29%
	Unknown	85	41%	-4%	-7%	9%	6%	-6%	10%	10%	64%
Chemistry	White	440	7%	-3%	5%	5%	2%	1%	5%	-2%	22%
	Unknown	35	11%	5%	10%	2%	-8%	1%	2%	-11%	10%
Electrical, electronic & computer engineering	Asian	80	9%	4%	-2%	-1%	8%	5%	10%	-1%	38%
	White	325	4%	-1%	1%	2%	4%	0%	7%	0%	17%
	Unknown	40	-1%	-5%	-3%	-17%	-1%	17%	4%	2%	-7%
IT, systems sciences & computer software engine..	Asian	75	5%	2%	5%	9%	9%	14%	4%	5%	66%
	White	460	9%	-2%	2%	6%	2%	2%	5%	1%	26%
	Unknown	40	21%	-15%	-4%	30%	14%	8%	24%	-7%	84%
Mathematics	Asian	30	24%	6%	14%	3%	5%	5%	12%	5%	101%
	White	610	6%	-3%	4%	1%	2%	4%	5%	-1%	19%
	Unknown	75	20%	-14%	-9%	14%	6%	-1%	2%	-2%	12%

Table 33: *HESA data for the percentage change from the previous year by ethnicity of professors from 2012/13 to 2020/21.*

Age Group

For Physics and all other academic disciplines, the age group which represents the most professors is 51 to 55 years old. Overall, the age profile of Physics professors is similar to that of all academic disciplines, however, Physics professors are slightly skewed towards younger age groups than professors for all other academic disciplines.

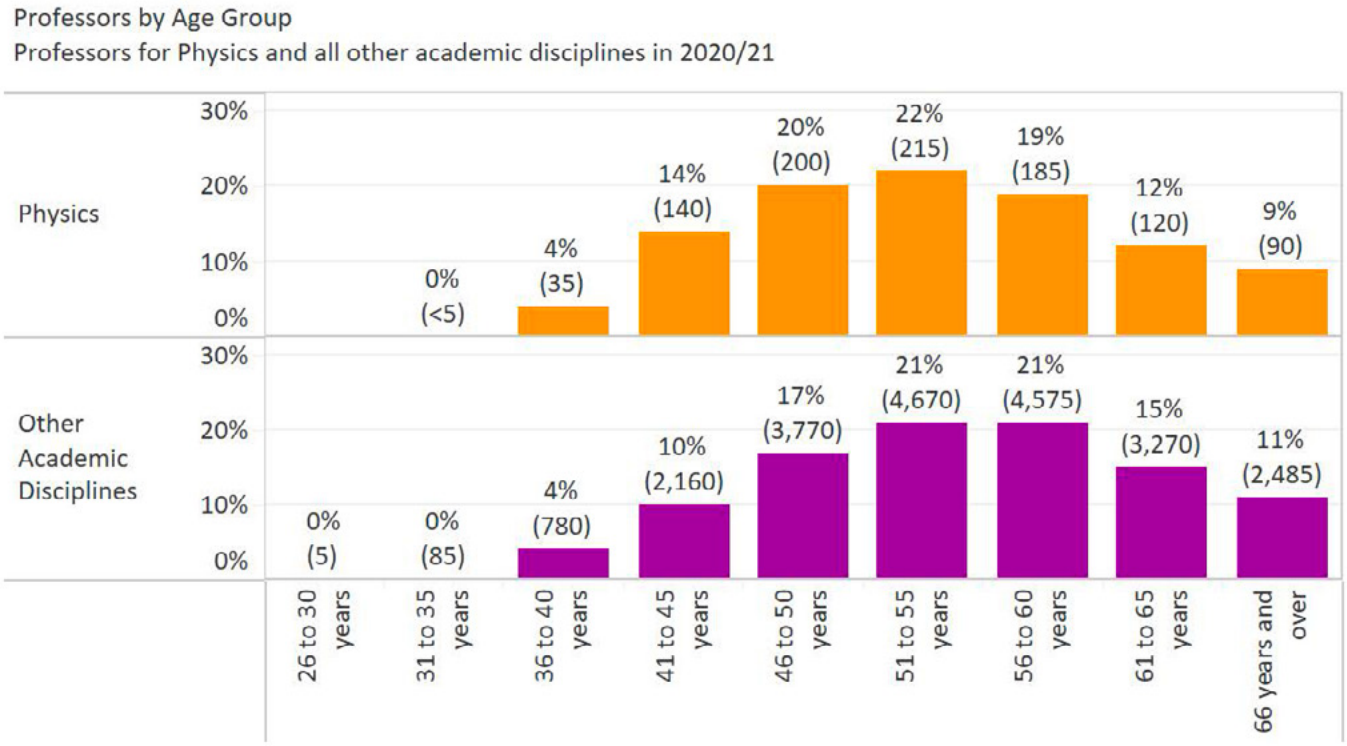

Figure 29: *HESA data for professors by age group in 2020/21 for Physics and all other academic disciplines.*

Figure 30 shows the proportion of Physics professors by age group further broken down by gender. Female Physics professors represent no more than 3% of the total number of Physics professors for any age group. The age group that has most female Physics professors in is 41 to 45, 46 to 50 and 51 to 55 years old (3%).

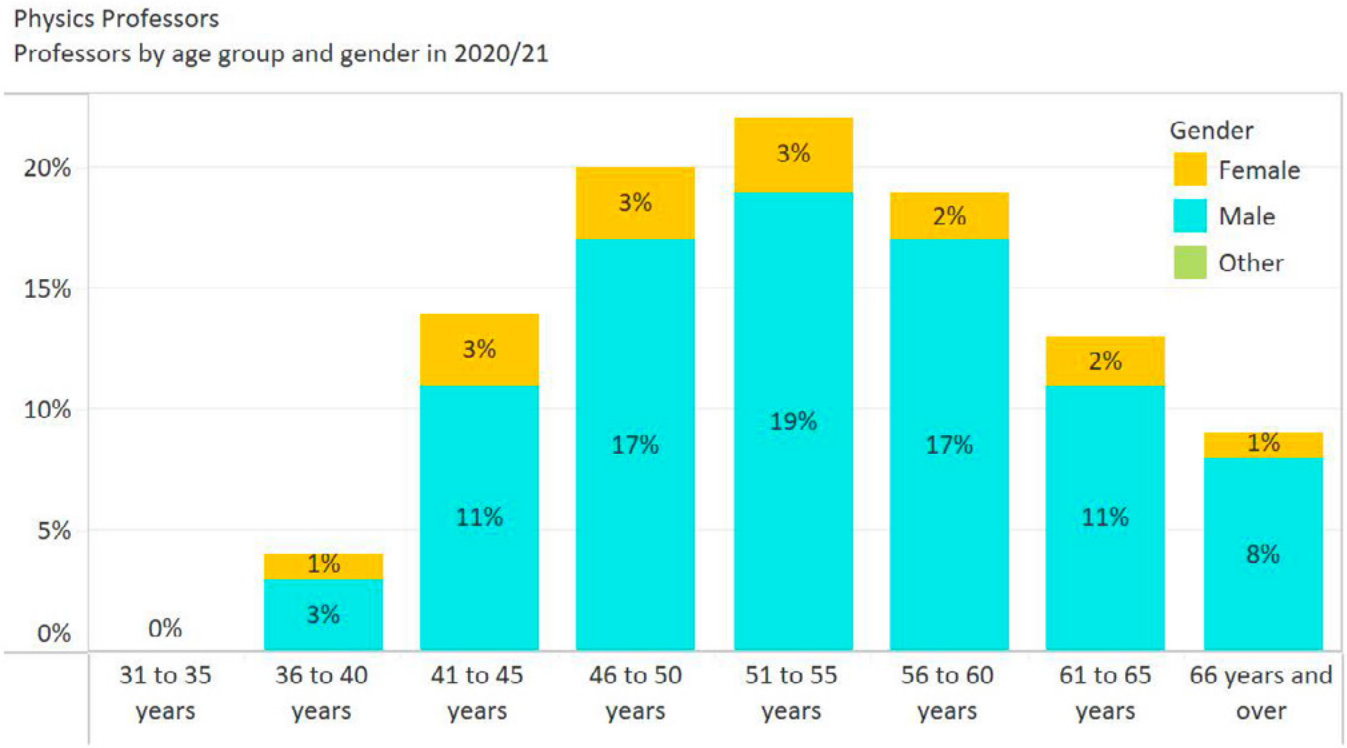

Figure 30: *HESA data for Physics professors by age group and gender for 2020/21.*

Salary

In 2020/21, 23% of Physics professors earned more than £100k and half of Physics professors earned less than £80k. Excluding those who earned £100k or more, the salary band with the highest proportion of Physics professors in is £70k to £75k (16%).

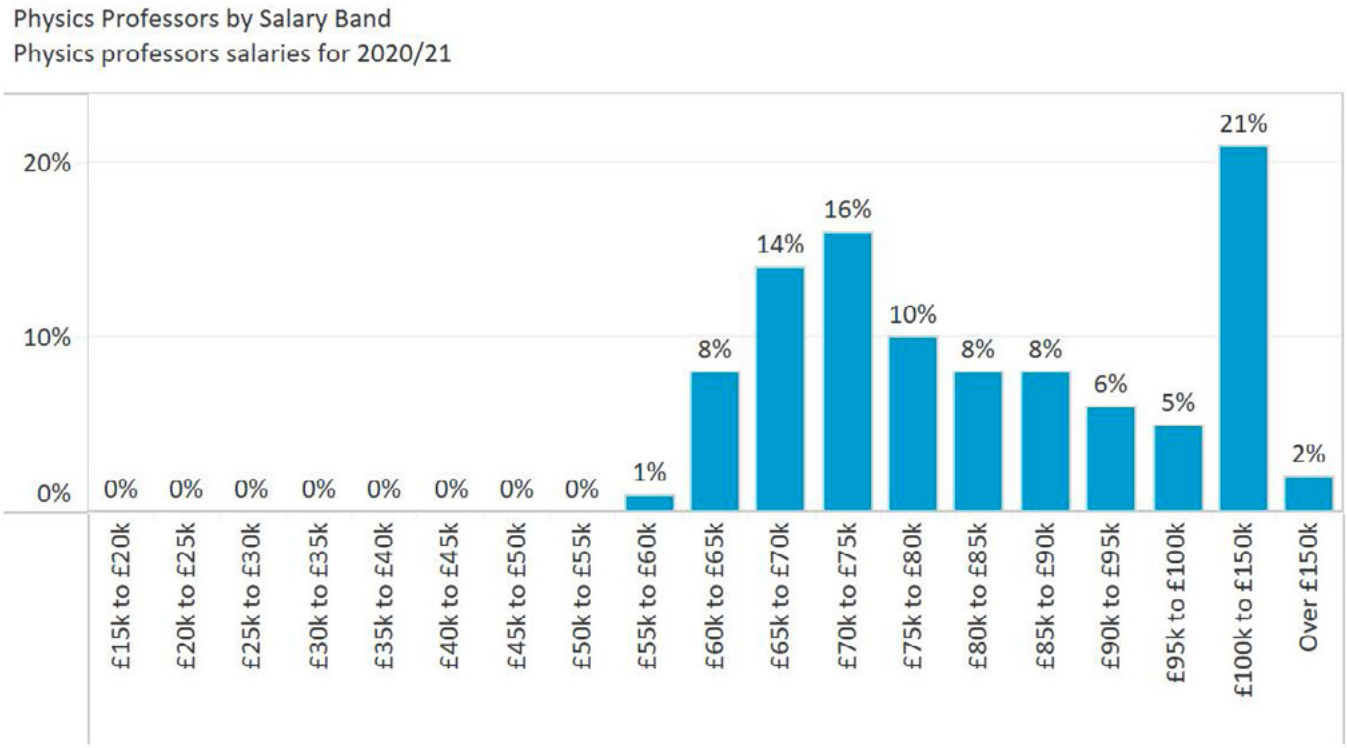

Figure 31: *HESA data for Physics professors by salary in 2020/21.*

As shown in **Figure 32**, the proportion of females increases with salary until the salary band 65k to 70k, then the proportion of females decreases for the higher salary bands.

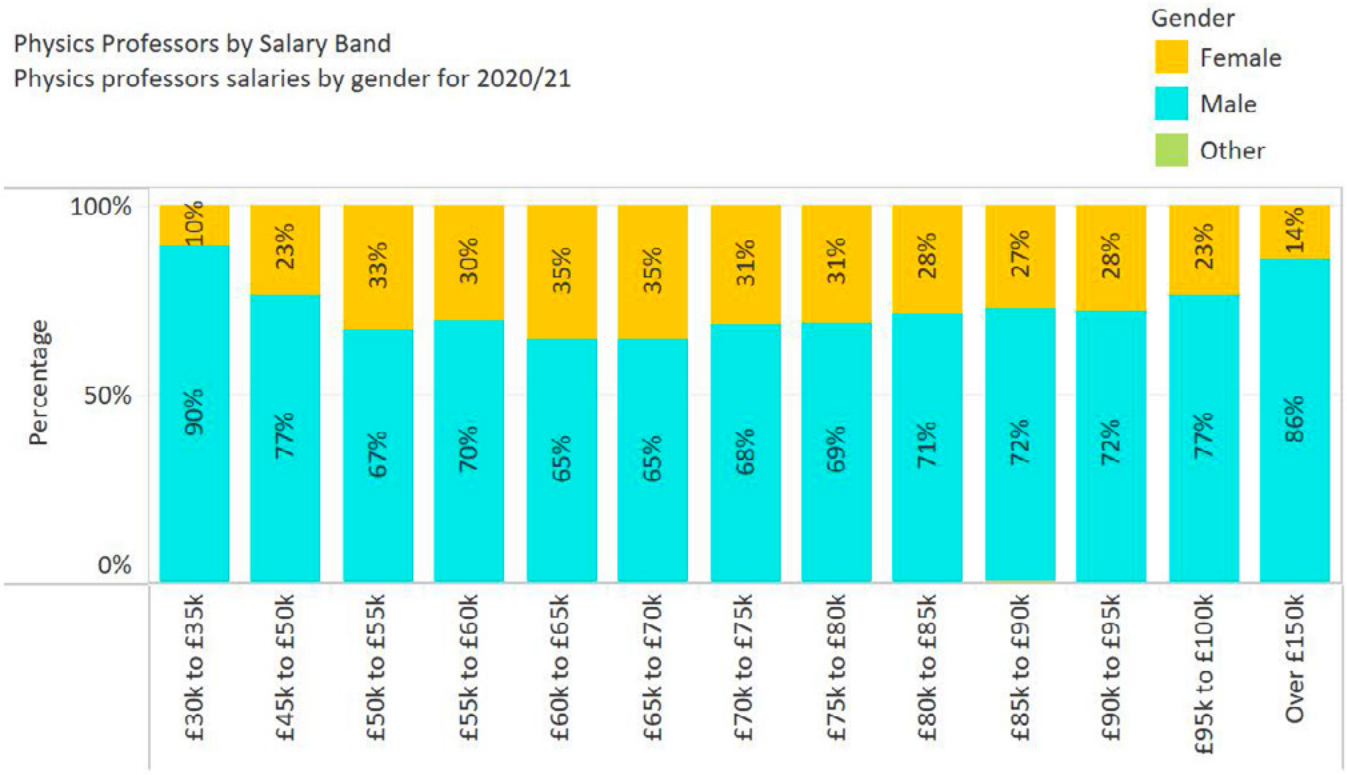

Figure 32: *HESA data for Physics professors by salary band and gender in 2020/21.*

Figure 33 shows the distribution of female and male Physics professors in each salary band. A higher percentage of male Physics professors are in the higher salary bands compared to female Physics professors.

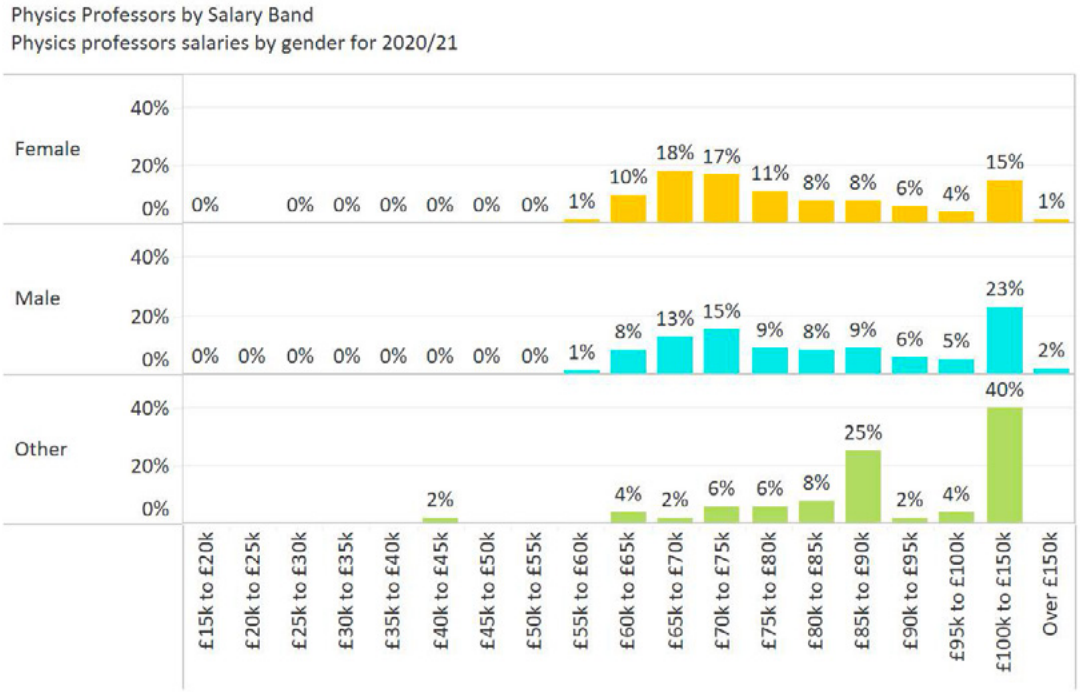

Figure 33: *HESA data for Physics professors by salary band and gender for 2020/21.*

Figure 34 shows the salary bands for Physics professors broken down by ethnicity. Most of the Physics professors who are Asian, have a salary that is in one of the salary bands from £60k to £65k salary band to £85k to £90k. There are also a similar number of Asian Physics professors in the £100k to £150k salary band.

Figure 34: *HESA data for Physics professors by salary band and ethnicity for 2020/21.*

IOP Institute of Physics

The IOP is the professional body and learned society for physics in the UK and Ireland, with an active role in promoting cooperation in physics around the world. We strive to make physics accessible to people from all backgrounds. Our 21,000 members demonstrate their professional expertise in physics in settings ranging from schools, universities and national research facilities, to businesses of all sizes, and in roles as varied as teacher, researcher, apprentice, technician, engineer and product developer.

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