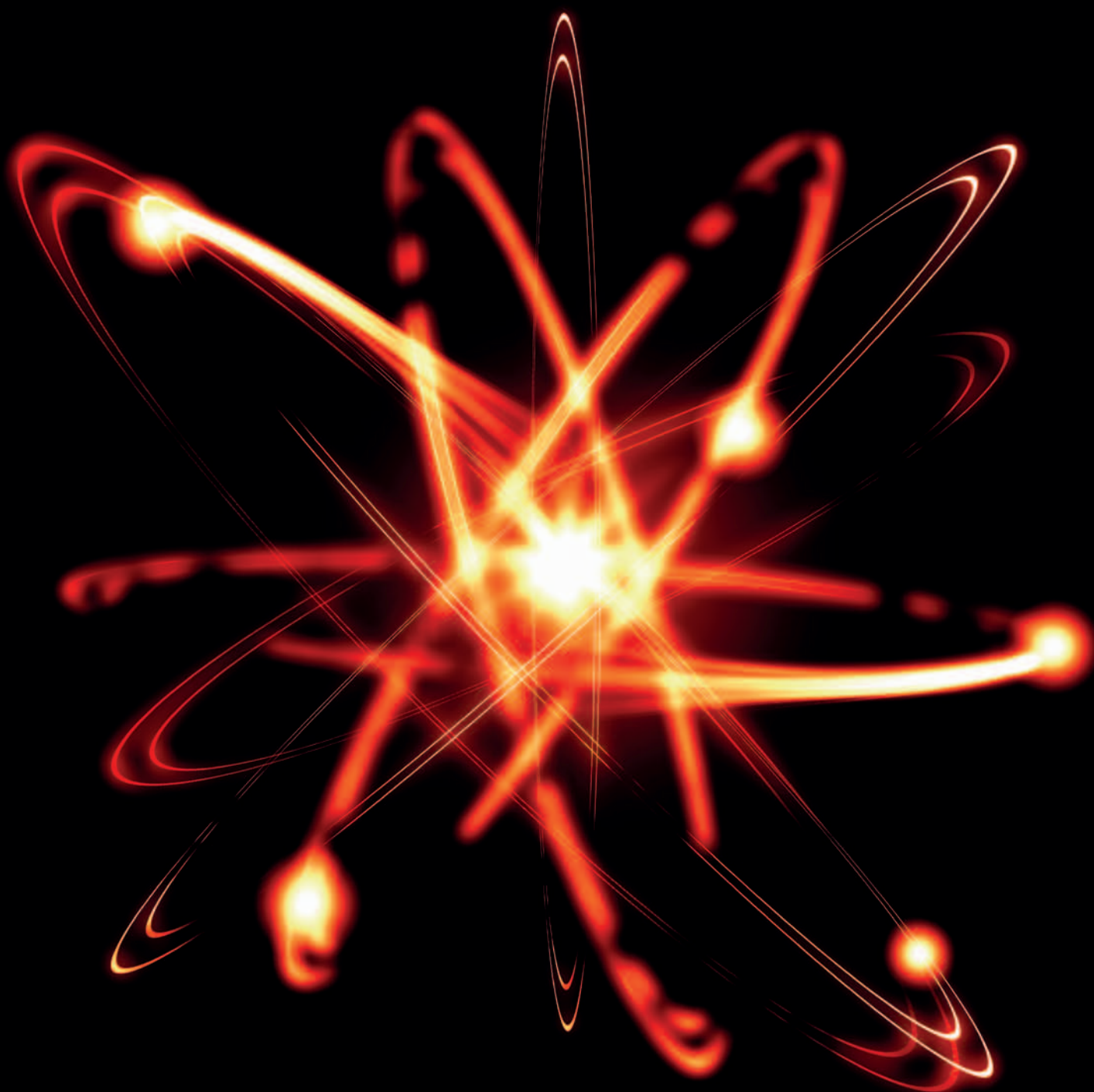


A report prepared for the Institute of Physics by Oxford Research & Policy | **December 2013**

Academic physics staff in UK higher education institutions

Updated with data for 2010/11 and 2011/12



The Institute of Physics is a leading scientific society. We are a charitable organisation with a worldwide membership of more than 50,000, working together to advance physics education, research and application. We engage with policymakers and the general public to develop awareness and understanding of the value of physics and, through IOP Publishing, we are world leaders in professional scientific communications.

This report was prepared by:

Sean McWhinnie

Oxford Research & Policy

Tel +44 (01235) 439188

E-mail info@oxfordresearchandpolicy.co.uk

www.oxfordresearchandpolicy.co.uk

Oxford Research & Policy is a consultancy that carries out research and evaluation, and specialises in higher education, science policy, and equality and diversity.

Contents

Summary	4
<hr/>	
1. Introduction	6
1.1. Cost centres	6
1.2. Staff grades and academic employment function	6
<hr/>	
2. Physics staff in UK HEIs	8
2.1. The number of staff	8
2.2. Physics staff and the RAE2008	11
2.3. Gender balance of staff	11
2.4. Age of staff	16
2.5. Age and gender profiles of staff	21
2.6. Nationality of staff	21
2.7. Ethnicity of staff	21

Summary

- The total number of staff in the physics cost centre rose from around 3500 in 2003/04 to around 4200 in 2008/09 and has remained at about that level until 2011/12. This equates to a rise of 20% between 2003/04 and 2011/12, which is in line with the 21% rise in the total number of staff working in all academic cost centres over the same period.
- The number of full professors in physics rose from 485 in 2003/04 to 745 in 2011/12, an overall increase of 53%, while the number of research active senior lecturers and lecturers has remained at around 980. It is notable that the number of professors in physics has continued to rise, possibly in the run up to the 2014 Research Excellence Framework. The number of researchers in the physics cost centre has risen from 1790 in 2003/04 to 2110 in 2011/12 (it peaked at 2210 in 2008/09), an overall increase of 18%, which is in line with the 22% rise in the number of researchers across all academic cost centres.
- Overall, in 2011/12 36% of research active physics staff on permanent academic grades (lecturers, senior lecturers and professors) were professors: physics has almost three times the proportion of professors compared with the sector average (13%).
- The proportion of research active academic staff that is female in physics has risen from 14% in 2003/04 to 16% in 2011/12, a rise of 14%, but remains significantly lower than the sector average of 42%. The sector average rose from 40% in 2003/04, a rise of 5%. In comparison the proportion of research active academic staff that is female in mathematics has remained fairly steady at 18% over the same period, in chemistry has risen from 23% to 24%, a rise of 4%, and in biosciences has risen from 39% to 42%, a rise of 5%. In contrast, the proportion of research active academic staff that is female in electrical, electronic and computer engineering remains lower than that in physics, having risen from 12% in 2003/04 to 13% in 2011/12, a rise of 8%. The proportion of female staff in physics is rising faster than that in other cost centres under consideration in this report.
- For academic staff in physics, 21% of men and 8% of women are professors, 26% of men and 27% of women are senior lecturers or lecturers and 53% of men and 65% of women are researchers.
- The proportion of research active academic staff that is female in physics is 16%. In comparison the proportion of teaching-only academic staff that is female in physics is 29%.
- Staff in the physics cost centre are on average younger than staff across all academic cost centres, and women are on average younger than men at all grades in physics and across all academic cost centres. In the physics cost centre, male permanent academic staff are on average 44.7 years old and women are 40.6 years old. Women are on average younger than men at every level in physics.

- When the age of staff is taken into account, women are less likely to have progressed to professorial level than men in all cost centres under consideration. In the age groups 31–40, 41–50 and 51–60, and for all the cost centres considered here, women are less likely to be professors than men, by a striking amount. In physics, among research active permanent academic staff, in 2011/12, 67% of men aged between the ages of 51 and 60 years were professors, compared with 44% of women.
- In line with all academic cost centres, the proportion of UK nationals in physics increases with grade. In physics 50% of researchers, 62% of senior lecturers/lecturers and 77% of professors are UK nationals, compared with 58% of researchers, 76% of senior lecturers/lecturers and 82% of professor in all academic cost centres.
- The proportion of male non-UK nationals in physics has risen from 31% in 2003/04 to 40% in 2011/12; the proportion of female non-UK nationals has remained consistently higher, rising from 44% in 2003/04 to 48% in 2011/12. Across all academic cost centres in 2011/12, 27% of men and 28% of women are non-UK nationals.
- In 2011/12, 94.0% of UK national academic staff in the physics cost centre were white, 2.7% were Asian, 1.4% were Chinese and 0.3% were black. In comparison, across the sector, 92.3% of UK national academic staff were white, 3.2% were Asian, 1.2% were Chinese and 1.2% were black.

Introduction

¹ *Academic Physics Staff in UK Higher Education Institutions*, IOP, London, 2012 (www.iop.org/publications/iop/2012/page_53618.html).

² Assignment of departments to academic cost centres 2001/02 (www.hefce.ac.uk/pubs/hefce/2002/02_25.htm).

This report is an updated version of the overview of academic and research staff in UK Higher Education Institutions (HEIs) in the physics cost centre and a number of other selected cost centres published in 2012.¹ The original report presented data on academic staff up to the academic year 2009/10. This edition also contains data for academic years 2010/11 and 2011/12.

In the main tables, figures have been added with data for 2010/11 and 2011/12. Additional analyses have been carried out and greater emphasis has been put on analyses of research active staff – in many cases teaching-only staff have been excluded. Key points have been noted but the commentary is not as detailed as that in the original report. Where there were no new data to add, sections have been excluded from this update, for example, the section on physics staff and the RAE2008.

The data source for the report is the Higher Education Statistics Agency (HESA). HESA is the central source for the collection and dissemination of statistics about publicly funded UK higher education.

1.1. Cost centres

HESA require staff data to be returned with staff assigned to cost centres. The list of cost centres includes physics, chemistry, mathematics, biosciences and electrical engineering & computer science, which are discussed in this report. HEIs are required to map their constituent departments/schools to cost centres, and they can apportion departments across a number of cost centres. This can lead to anomalies: in some cases, HEIs report physics staff although there is no recognised physics department. In other cases staff numbers may not match those in a specific physics department because staff from other departments may have been counted as belonging to the physics cost centre, and/or staff working in a physics department may be assigned to another cost centre.

Cost centres vary greatly in their breadth of coverage, for example, biosciences covers a large range of university departments, including life and health sciences, biomedical science, cancer research, biochemistry and sports science. Full

details of the mapping between departments and cost centres are available on the HEFCE website.² In physics the majority of HEIs map their physics departments directly onto the physics cost centre; a few HEIs use more complicated mappings. For example, in 2001/02, the most recent year for which comprehensive data are available, University College London classified 100% of medical physics and bioengineering, physics and astronomy, and space and climate physics as physics. Liverpool John Moores University classified 100% of the Astrophysics Research Institute and 8% of their School of Engineering as physics.

1.2. Staff grades and academic employment function

Until 2007/08, HESA reported staff data categorised into professors, senior lecturers (including readers), lecturers, researchers and other grades. The definitions of these staff grades are shown below:

- **Professors** includes heads of departments, professors, researchers (former UAP scale grade IV), clinical professors and those appointed professors on a locally determined scale.
- **Senior lecturers and researchers** includes principal lecturers, senior lecturers (former UAP/CSCFC scales), readers, researchers (former UAP scale grade III), clinical senior lecturers and those appointed senior or principal lecturers on a locally determined scale.
- **Lecturers** includes lecturers, senior lecturers (former PCEF scale), clinical lecturers and those appointed lecturers on a locally determined scale.
- **Researchers** includes all research grades (former PCEF/CSCFC/UAP scale) not listed above and those researchers appointed on a locally determined scale.
- **Other grades** includes other grades of academic staff not listed above.

Since 2008/09 this breakdown of grades has not been used, although professors are identifiable through a specific marker. To identify grades of staff the following methodology has

been used. For staff who are not identified as professors, the academic employment function field is used as follows: staff identified as “teaching and research” or staff identified as “teaching only” are classified as “senior lecturers/lecturers”; staff identified as “research only” are classified as “researchers”; and staff identified as “neither teaching nor research” are classified as “other grades”. Some staff will be classified incorrectly using this methodology, in particular senior researchers may be assigned to the “researcher” category rather than “senior lecturers/lecturers” and some teaching-only staff may be assigned to the “senior lecturers/lecturers” category rather than “other grades”. It is noticeable that the other staff category has significantly fewer staff assigned to it using this methodology after 2007/08 than those that were assigned to it up to 2007/08, suggesting that indeed a number of teaching-only staff were previously classified as “other staff”. Nonetheless, overall data compared reasonably well with

previous years’. It was not possible to distinguish between senior lecturers (readers) and lecturers.

Staff numbers are presented as full-time equivalents (FTEs) not as head counts (data from earlier years presented in **figure 3** are head counts). HESA requires that where numerical totals are published they are rounded to the nearest five. Any totals less than five may not be published. All proportions and ratios presented in the report are calculated using unrounded figures.

In the report a number of different terms are used to signify different groupings of academic grades. The term “permanent academic staff” refers to professors, senior lecturers and lecturers; the term “academic staff” refers to professors, senior lecturers, lecturers and researchers; and the term “all staff” refers to all academic staff grades and other grades.

It should be noted that many analyses presented in this report exclude teaching-only staff and instead focus on research-active staff, academic or permanent academic staff.

Physics staff in UK HEIs

2.1. The number of staff

As shown in **table 1**, the total number of staff in the physics cost centre rose from about 3500 in 2003/04 to around 4200 in 2008/09 and has remained at around that level until 2011/12. This equates to a rise of 20% between 2003/04 and 2011/12, which is in line with the 21% rise in the total number of staff working in all academic cost centres over the same period of time. By contrast, the number of staff working in the mathematics cost centre rose by 40%, in chemistry by 16%, in electrical, electronic & computer engineering by 12%, and in biosciences by 13%.

In physics, since 2009/10 there has continued to be an increase in the number of permanent academic staff (lecturers, senior lecturers and professors) and in particular the number of professors in physics has risen from 485 in 2003/04 to 745 in 2011/12, an overall increase of 53%. The number of research active senior lecturers and lecturers has essentially stayed at about 980. A similar pattern is observed across all cost centres: the number of research-active senior lecturers and lecturers has changed little (77,900 in 2003/04 and 75,180 in 2011/12), but the number of professors has increased by 37%. The data suggest that the increase in the total number of permanent academic staff has been matched by the increase in the number of professors. It is notable that the number of professors has continued to rise, possibly in the run up to the 2014 Research Excellence Framework.

Data on the distribution of sizes of physics cost

centres in 2011/12 are presented in **figure 1**. The size of individual physics cost centres varies greatly by HEI with fewer than 10 staff to very large departments with well over 200 staff. It is worth bearing in mind that in some HEIs the physics cost centre may be significantly larger or smaller than the physics “department”.

Table 2 shows the proportion of academic staff in physics cost centres at each grade. As already mentioned, since 2003/04 the proportion of professors has increased and the proportion of senior lecturers/lecturers has fallen slightly.

Figure 2 shows counts of the proportions of permanent academic staff who are professors by individual physics cost centres. The mode of the distribution is 41–45%, the median is 31–35% and the maximum is 56–60%. The data show that the proportion of staff who are professors in physics varies widely throughout the sector. It is also notable that in general, Russell Group HEIs have higher proportions of permanent academic staff who are professors than non-Russell Group HEIs.

The proportion of research-active physics staff who are professors (see **table 3**) has risen steadily and there was a 3% increase between 2010/11 and 2011/12, with a corresponding decrease in the proportion of senior lecturers/lecturers.

Examination of the data for teaching-only staff in **table 4** shows that, overall, less than 2% of teaching-only staff in the physics cost centre are professors. Overall across all cost centres, less than 1% of teaching-only staff were professors.

Source: HESA staff data

Figure 1: Number of all staff in individual physics cost centres by HEI in 2011/12

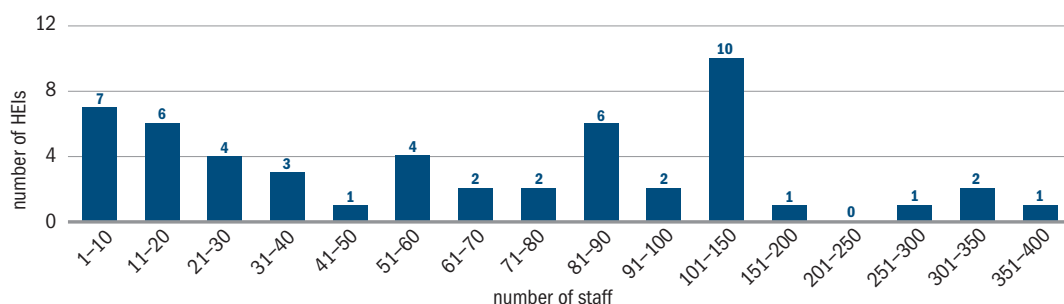


Table 1: The number of staff in selected academic cost centres by grade 2003/04 to 2011/12

Cost centre	Grade	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	% change*
Physics	Professor	485	515	570	590	620	635	650	670	745	53%
	Senior lecturer	590	600	570	555	585	1355	1335	1320	1350	37%
	Lecturer	390	380	375	400	420					
	Other grades	255	265	350	330	350	10	0	0	0	
	Researcher	1790	1745	1900	1995	2125	2210	2180	2145	2110	18%
	Teaching only				310	335	385	365	345	355	15%
	Total staff	3510	3505	3765	3865	4100	4210	4170	4140	4205	20%
Mathematics	Professor	560	585	620	685	755	720	710	695	765	37%
	Senior lecturer	645	640	640	695	750	2560	2615	2655	2585	73%
	Lecturer	855	885	910	930	975					
	Other grades	370	775	875	850	870	10	5	5	5	
	Researcher	480	470	525	630	715	685	705	725	715	48%
	Teaching only				1015	1030	1085	1080	1145	1065	5%
	Total staff	2910	3355	3570	3790	4065	3975	4035	4080	4070	40%
Chemistry	Professor	380	375	400	420	455	460	450	460	515	36%
	Senior lecturer	485	510	505	530	565	1375	1440	1440	1395	47%
	Lecturer	465	425	440	485	490					
	Other grades	330	365	325	290	250	0	0	0	0	
	Researcher	1465	1510	1645	1715	1760	1725	1675	1680	1695	16%
	Teaching only				320	280	355	375	410	425	34%
	Total staff	3125	3185	3315	3435	3525	3565	3565	3585	3610	16%
Electrical, electronic & computer engineering	Professor	390	440	440	445	465	475	465	470	485	25%
	Senior lecturer	565	645	700	785	855	1910	2040	2205	2135	39%
	Lecturer	970	1030	1025	810	710					
	Other grades	490	530	440	355	355	10	5	0	0	
	Researcher	1205	1320	1275	1340	1370	1395	1345	1450	1415	18%
	Teaching only				405	385	410	495	585	595	47%
	Total staff	3620	3970	3885	3730	3760	3790	3855	4125	4040	12%
Biosciences	Professor	1005	1020	1060	1100	1190	1220	1220	1190	1295	29%
	Senior lecturer	1455	1425	1530	1645	1710	4715	4695	4940	4875	51%
	Lecturer	1780	1735	1590	1650	1715					
	Other grades	865	1320	1285	1255	1210	20	10	5	10	
	Researcher	5295	5190	5325	5330	5515	5815	5875	5720	5620	6%
	Teaching only				1115	1160	1340	1320	1395	1390	25%
	Total staff	10395	10695	10785	10980	11340	11775	11790	11855	11795	13%
All cost centres	Professor	13255	14195	15190	16165	17895	17220	17055	17120	18125	37%
	Senior lecturer	24425	25700	27865	33280	36560	118760	121260	120690	120110	54%
	Lecturer	53475	54390	52675	50980	50985					
	Other grades	23675	30295	31385	30200	28695	700	375	275	285	
	Researcher	32760	33005	34430	36280	37565	39200	39685	40060	40105	22%
	Teaching only				42105	41795	44730	45300	44180	44930	7%
	Total staff	147585	157585	161540	166910	171700	175880	178375	178145	178630	21%

*Percentage change is calculated based on the data for 2003/04 and 2011/12, except for teaching-only staff where the percentage change is calculated based on the data for 2006/07 and 2011/12. Percentages are calculated using unrounded figures and therefore may not be the same as those calculated using the rounded figures in the table.

Source: HESA staff data

2: Physics staff in UK HEIs

Source: HESA staff data

Table 2: The proportion of staff in physics cost centres at each grade in HEIs 2004/05 to 2011/12, excluding teaching-only staff

Year	Professor	Senior lecturer	Lecturer	Other staff	Researcher
2003/04	14%	17%	11%	7%	51%
2004/05	15%	17%	11%	8%	50%
2005/06	15%	15%	10%	9%	50%
2006/07	17%	15%	10%	2%	56%
2007/08	16%	15%	10%	1%	56%
2008/09	17%	25%			58%
2009/10	17%	26%			57%
2010/11	18%	26%			57%
2011/12	19%	26%			55%

Note: Percentages are calculated using unrounded figures and therefore may not be the same as those calculated using the rounded figures in table 1.

Source: HESA staff data

Table 3: The proportion of staff at each permanent academic grade in selected academic cost centres 2006/07 to 2011/12, excluding teaching-only staff

Cost centre	Grade	Proportion of staff at each grade					
		2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Physics	Professor	39%	39%	39%	40%	40%	43%
	Senior lecturer	37%	37%	61%	60%	60%	57%
	Lecturer	24%	24%				
Mathematics	Professor	33%	33%	33%	31%	31%	31%
	Senior lecturer	33%	33%	67%	69%	69%	67%
	Lecturer	34%	34%				
Chemistry	Professor	32%	33%	31%	29%	30%	34%
	Senior lecturer	40%	40%	69%	71%	70%	66%
	Lecturer	29%	28%				
Electrical, electronic & computer engineering	Professor	24%	25%	24%	23%	22%	24%
	Senior lecturer	42%	45%	76%	77%	78%	76%
	Lecturer	34%	31%				
Biosciences	Professor	27%	28%	26%	26%	25%	27%
	Senior lecturer	39%	39%	74%	74%	75%	73%
	Lecturer	34%	33%				
All cost centres	Professor	19%	21%	19%	18%	18%	19%
	Senior lecturer	38%	39%	81%	82%	82%	81%
	Lecturer	43%	39%				

2.2. Physics staff and the RAE2008

The section on physics staff and the RAE2008 has not been revised. For full details see the previous report.³

2.3. Gender balance of staff

The proportion of all academic staff, excluding teaching-only staff, that is female in selected cost centres is shown in **table 5**. The proportion of research-active staff that is female in physics has risen from 14% in 2003/04 to 16% in 2011/12, but remains significantly lower than the sector

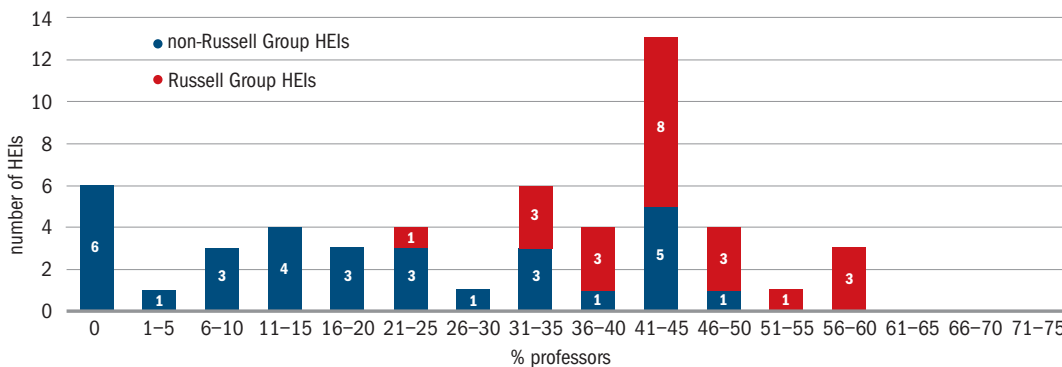
average of 42%.

Table 6 shows the proportion of teaching-only staff that is female in selected cost centres. The proportion of teaching-only staff that is female is higher overall than the proportion of research-active staff that is female. In all of the individual cost centres under consideration, the proportion of teaching-only staff that is female is higher than the proportion of research-active staff that is female. In the case of physics, 16% of research active staff are female, and 29% of teaching-only staff are female.

³ Academic Physics Staff in UK Higher Education Institutions, IOP, London, 2012 (www.iop.org/publications/iop/2012/page_53618.html).

Figure 2: Proportion of all permanent academic staff* in physics cost centres who are professors by HEI in 2011/12 showing Russell Group and non-Russell Group HEIs

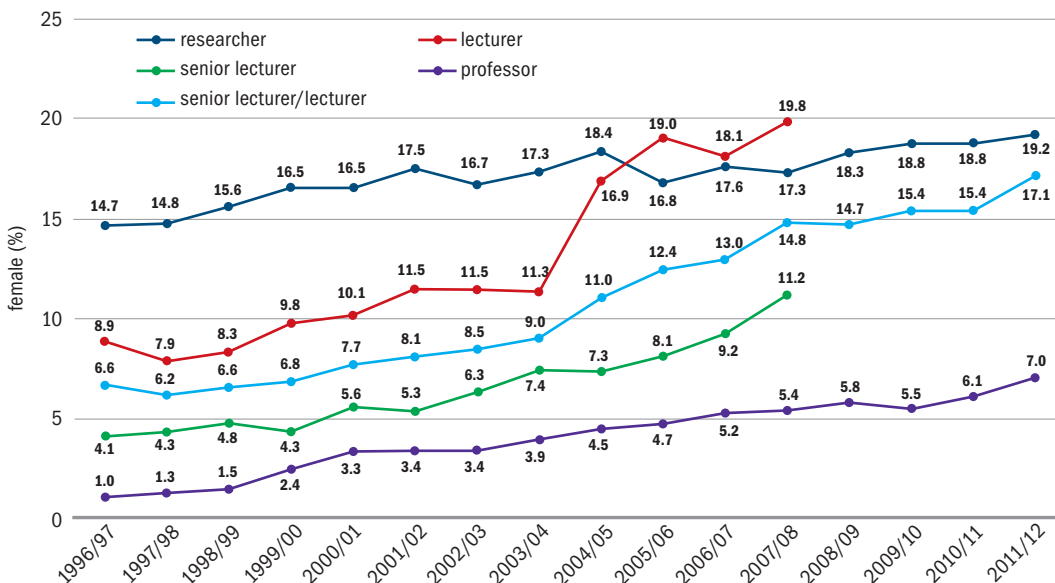
Source: HESA staff data



*Permanent academic staff are professors, senior lecturers and lecturers.

Figure 3: Proportion of all staff that is female in the physics cost centre at each grade 1996/97 to 2011/12

Source: HESA staff data



2: Physics staff in UK HEIs

Source: HESA staff data

Table 4: The proportion of teaching-only staff at each permanent academic grade in selected academic cost centres 2006/07 to 2011/12

Cost centre	Grade	Proportion of staff at each grade					
		2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Physics	Professor	0.0%	2.5%	1.0%	1.1%	1.2%	1.5%
	Senior lecturer	8.2%	12.6%	99.0%	98.9%	98.8%	98.5%
	Lecturer	91.8%	84.9%				
Mathematics	Professor	0.4%	0.5%	0.1%	0.3%	0.3%	0.3%
	Senior lecturer	6.4%	5.0%	99.9%	99.7%	99.7%	99.7%
	Lecturer	93.2%	94.6%				
Chemistry	Professor	1.7%	2.7%	1.1%	1.3%	1.2%	1.2%
	Senior lecturer	6.7%	10.7%	98.9%	98.7%	98.8%	98.8%
	Lecturer	91.6%	86.6%				
Electrical, electronic & computer engineering	Professor	0.5%	2.0%	0.7%	0.4%	0.2%	0.5%
	Senior lecturer	6.1%	6.1%	99.3%	99.6%	99.8%	99.5%
	Lecturer	93.3%	91.9%				
Biosciences	Professor	1.4%	0.4%	0.5%	0.8%	0.6%	0.6%
	Senior lecturer	12.6%	7.6%	99.5%	99.2%	99.4%	99.4%
	Lecturer	86.0%	92.0%				
All cost centres	Professor	0.9%	0.9%	0.5%	0.5%	0.5%	0.4%
	Senior lecturer	11.3%	9.3%	99.5%	99.5%	99.5%	99.6%
	Lecturer	87.8%	89.8%				

Table 5: The proportion of all staff* that is female in selected academic cost centres 2003/04 to 2011/12, excluding teaching-only staff

Cost centre	Proportion of staff that is female								
	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Physics	14%	15%	15%	14%	15%	15%	16%	16%	16%
Mathematics	18%	21%	22%	16%	18%	18%	18%	17%	18%
Chemistry	23%	23%	24%	23%	23%	24%	24%	24%	24%
Electrical, electronic & computer engineering	12%	12%	13%	12%	11%	12%	12%	13%	13%
Biosciences	39%	40%	41%	40%	40%	41%	41%	41%	42%
All cost centres	40%	41%	42%	40%	40%	41%	41%	42%	42%

*All staff comprises professors, senior lecturers, lecturers, other staff and researchers.

Source: HESA staff data

Source: HESA staff data

Table 6: The proportion of teaching-only staff* that is female in selected academic cost centres 2006/07 to 2011/12

Cost centre	Proportion of staff that is female					
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Physics	28%	25%	27%	26%	29%	29%
Mathematics	37%	37%	36%	38%	38%	37%
Chemistry	37%	39%	41%	39%	37%	40%
Electrical, electronic & computer engineering	17%	16%	14%	18%	20%	18%
Biosciences	53%	55%	54%	55%	57%	58%
All cost centres	50%	51%	51%	51%	52%	52%

* Staff comprises professors, senior lecturers, lecturers, other staff and researchers.

Table 7: The number of male and female teaching-only academic staff* in selected academic cost centres 2006/07 to 2011/12

Cost centre	Gender	Number of academic staff						% change**
		2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	
Physics	Male	225	250	280	270	245	255	13.3%
	Female	85	80	105	95	100	105	23.5%
Mathematics	Male	640	650	690	670	710	675	5.5%
	Female	370	380	390	410	435	395	6.8%
Chemistry	Male	200	170	210	230	255	255	27.5%
	Female	120	110	145	145	155	170	41.7%
Electrical, electronic & computer engineering	Male	335	320	355	405	470	485	44.8%
	Female	70	65	55	90	115	110	57.1%
Biosciences	Male	525	520	615	590	605	585	11.4%
	Female	585	640	730	730	790	805	37.6%
All cost centres	Male	21130	20580	21855	21990	21405	21640	2.4%
	Female	20975	21215	22875	23305	22770	23290	11.0%

* Academic staff comprises professors, senior lecturers, lecturers and researchers.
** Percentages are calculated using unrounded figures and therefore may not be the same as those calculated using the rounded figures in table 1.

Source: HESA staff data

In **table 7** the numbers of teaching-only staff in selected cost centres from 2006/07 to 2011/12 are shown, together with the percentage changes in the numbers over that time period. In all cost centres the numbers of women in teaching-only roles has increased by a larger proportion than the numbers of men.

Figure 3 shows the proportion of staff that is female by grade in the physics cost centre between 1997/98 and 2011/12. **Table 8** shows the proportion of physics graduates that is female

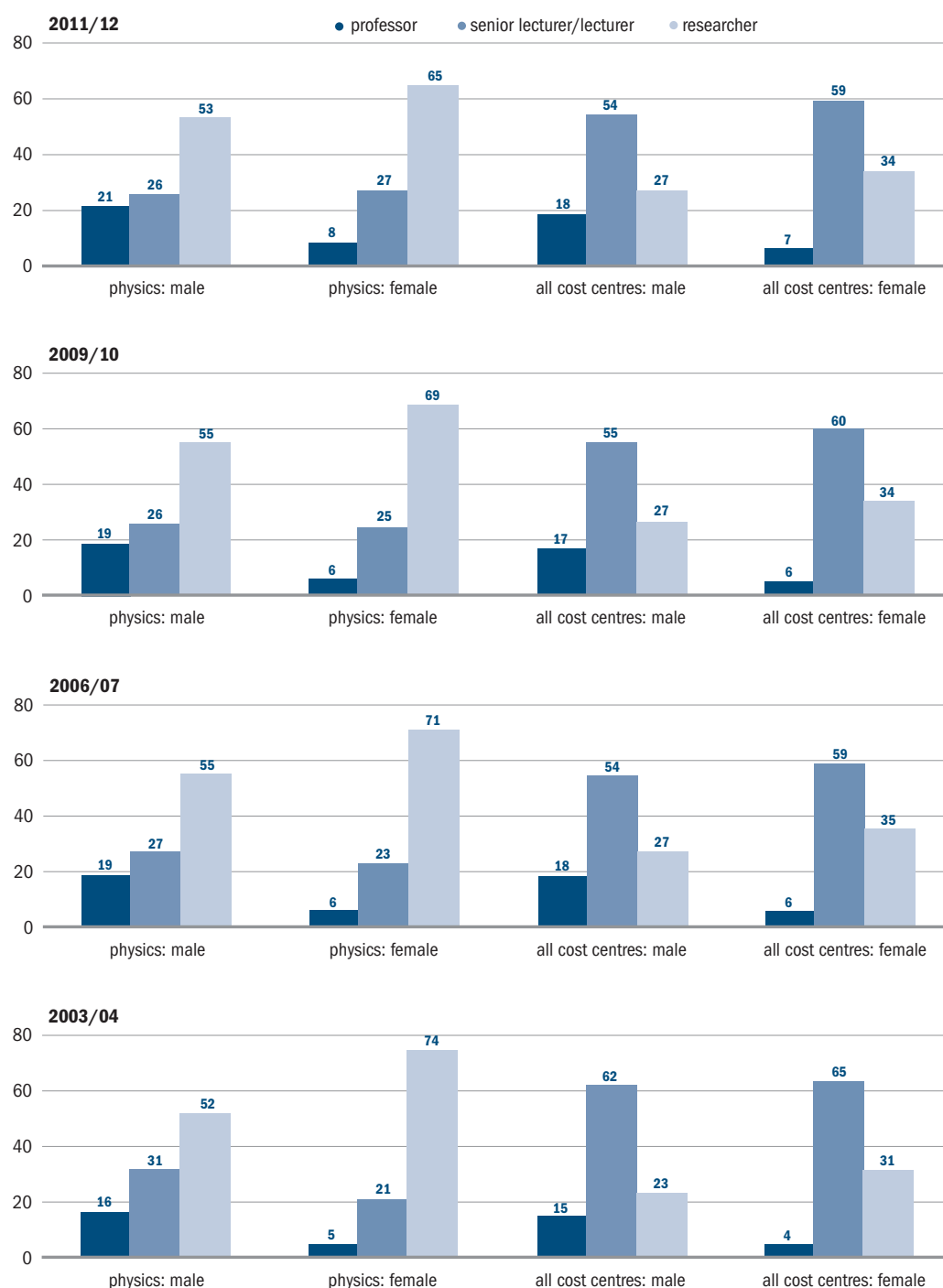
by level of study during the same period.

Figure 4 shows how the populations of men and women, excluding teaching-only staff, are distributed between academic grades in the physics cost centre and across all cost centres. Across all cost centres in 2011/12, 18% of men and 7% of women are professors. Likewise, 54% of men are senior lecturers or lecturers compared with 59% of women, and 27% of men and 34% of women are researchers. For research-active women there is one professor for every eight

2: Physics staff in UK HEIs

Source: HESA staff data

Figure 4: Percentage distribution of male and female academic staff* excluding teaching-only staff, between grades in physics and all academic cost centres 2003/04 to 2011/12



*Academic staff are professors, senior lecturers, lecturers and researchers.

Table 8: The proportion of physics graduates that is female by level of study 2004/05 to 2011/12

Source: HESA student data

Degree level	Proportion of graduates that is female*							
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
First degree	21.0%	21.6%	21.6%	21.2%	20.6%	21.4%	22.9%	22.1%
Masters	32.8%	33.1%	29.0%	27.5%	29.8%	23.9%	28.8%	29.7%
Doctorate	22.2%	21.3%	22.5%	24.6%	26.6%	23.5%	24.0%	24.6%

*Proportions are based on headcounts of graduates who spent 50% or more of their time studying physics.

Table 9: Percentage of male and female academic staff, excluding teaching-only staff, at different grades in selected academic cost centres 2003/04 to 2011/12

Cost centre	Grade	Male				Female			
		2003/04	2006/07	2009/10	2011/12	2003/04	2006/07	2009/10	2011/12
Physics	Professor	16%	19%	19%	21%	5%	6%	6%	8%
	Senior lecturer/lecturer	31%	27%	26%	26%	21%	23%	25%	27%
	Researcher	52%	55%	55%	54%	74%	71%	69%	65%
Mathematics	Professor	25%	29%	27%	29%	4%	7%	8%	11%
	Senior lecturer/lecturer	56%	49%	50%	49%	73%	66%	62%	60%
	Researcher	18%	22%	23%	24%	23%	27%	29%	30%
Chemistry	Professor	16%	17%	17%	19%	3%	4%	4%	5%
	Senior lecturer/lecturer	37%	32%	34%	31%	23%	22%	32%	31%
	Researcher	46%	51%	49%	50%	74%	74%	64%	64%
Electrical, electronic & computer engineering	Professor	14%	15%	15%	15%	3%	5%	6%	7%
	Senior lecturer/lecturer	49%	45%	46%	45%	46%	38%	45%	43%
	Researcher	37%	40%	39%	40%	51%	57%	49%	50%
Biosciences	Professor	15%	17%	16%	18%	3%	4%	4%	5%
	Senior lecturer/lecturer	38%	35%	35%	36%	27%	26%	28%	31%
	Researcher	47%	48%	48%	47%	70%	70%	68%	64%
All cost centres	Professor	15%	18%	17%	18%	4%	6%	6%	7%
	Senior lecturer/lecturer	62%	54%	55%	54%	65%	59%	60%	59%
	Researcher	23%	27%	27%	27%	31%	35%	34%	34%

Source: HESA staff data

senior lecturers or lecturers, whereas for research-active men the ratio is 1:3.

In physics, 21% of men and 8% of women are professors, 26% of men and 27% of women are senior lecturers or lecturers, and 53% of men and 65% of women are researchers. For research-active women there is one professor for every 3.4 senior lecturers or lecturers, whereas for research-active men the ratio is 4:5. An interesting question is whether the surge in the proportion of lecturers

who are female will show in the proportion of professors who are female in a few years' time?

Data in **table 9** show the percentages of men and women, excluding teaching-only staff, at different grades in selected cost centres. Similar patterns to those in physics are displayed in all of the science, engineering, technology and mathematics (STEM) cost centres examined. In all cases, lower proportions of women are professors than men.

2: Physics staff in UK HEIs

Source: HESA staff data

Figure 5: Percentage distribution of academic staff at a particular grade between five-year age bands in the physics cost centre by gender in 2011/12

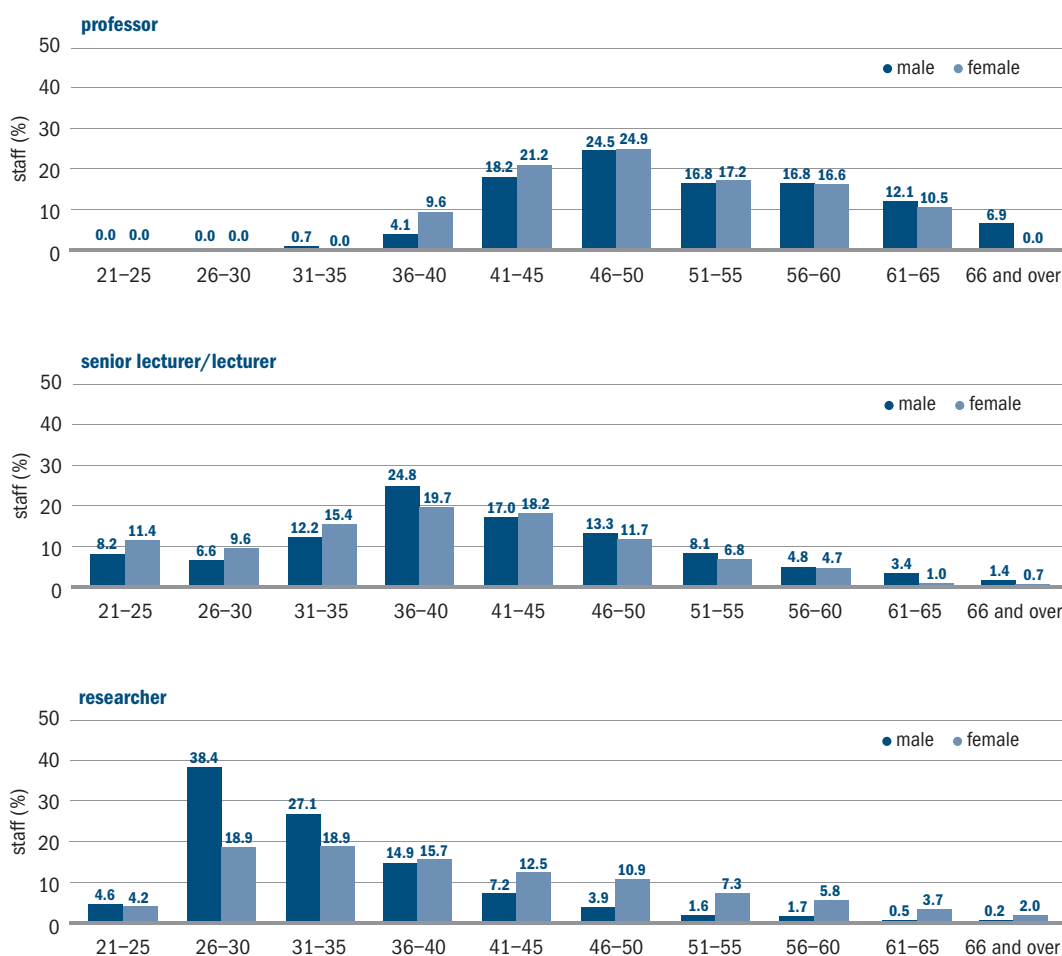


Table 10: Proportion of male and female permanent academic staff*, excluding teaching-only staff, at professorial level in selected academic cost centres 2011/12

Cost centre	Proportion of permanent academic staff at professorial level		
	Male	Female	Overall
Physics	45%	23%	43%
Mathematics	37%	15%	33%
Chemistry	39%	15%	34%
Electrical, electronic & computer engineering	25%	13%	24%
Biosciences	33%	14%	27%
All cost centres	25%	10%	19%

*Permanent academic staff are professors, senior lecturers and lecturers.

Source: HESA staff data

Table 10 shows the proportion of male and female permanent academics staff, excluding teaching-only staff, who are professors in selected cost centres.

2.4. Age of staff

Figure 5 shows the distribution by ages of male and female physics staff within each grade in 2011/12, and **figure 6** shows the same distributions across all cost centres in 2011/12. It is interesting to note that, particularly in the physics data, a 10-year time lag in the movement of staff from lower to higher grades is clearly visible.

Table 11 shows the average age of staff in selected cost centres in 2011/12. Staff in the physics cost centre are on average younger than staff across all cost centres, and women are on average younger than men at all grades in physics and across all cost centres.

Source: HESA staff data

Figure 6: Percentage distribution of academic staff at a particular grade between five-year age bands in all academic cost centres by gender in 2011/12

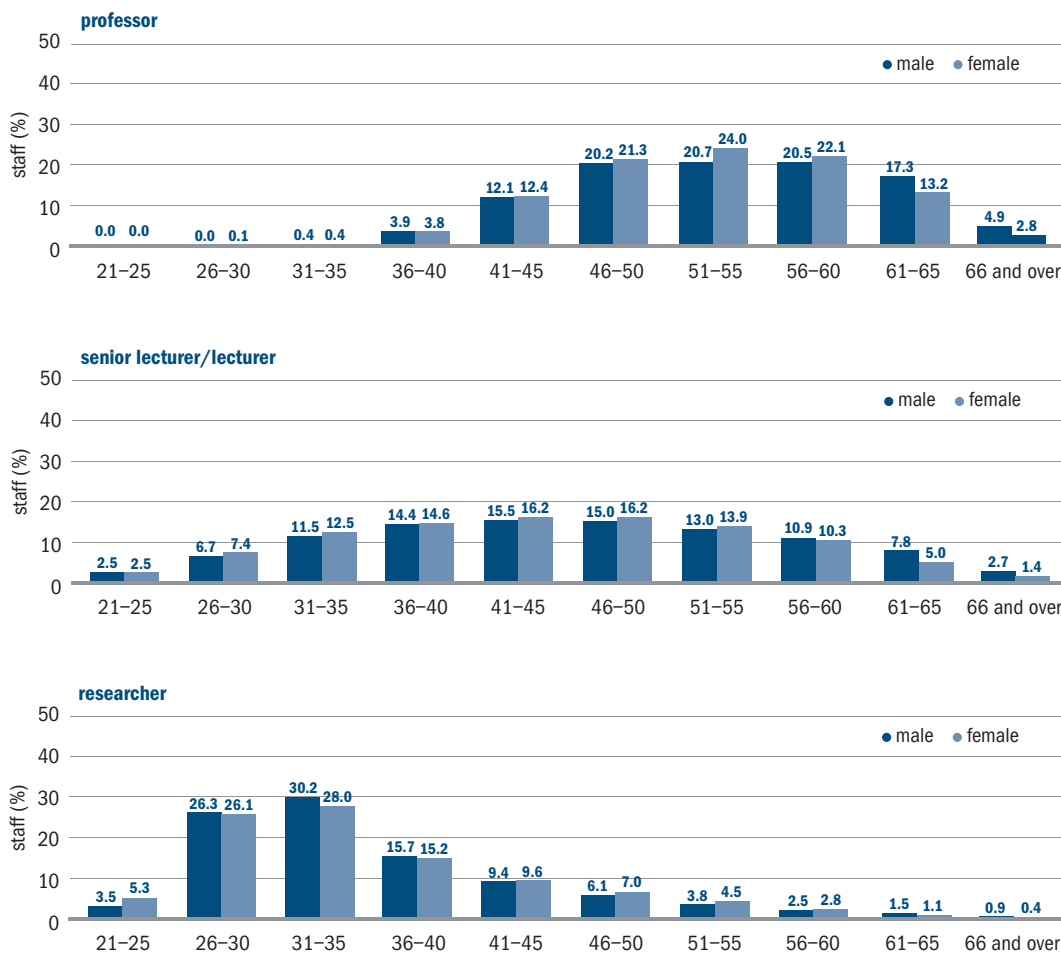


Table 11: Average age of academic staff* by grade and gender in selected academic cost centres 2011/12, including teaching-only staff

Cost centre	Average age of staff (years)							
	Professor		Senior lecturer/lecturer		Permanent academic staff**		Researcher	
	Male	Female	Male	Female	Male	Female	Male	Female
Physics	51.2	49.9	40.7	38.7	44.7	40.6	35.3	33.6
Mathematics	52.0	51.1	42.4	42.6	45.1	43.2	32.6	33.1
Chemistry	51.1	48.3	42.8	38.2	45.4	39.1	34.0	33.1
Electrical, electronic & computer engineering	52.1	48.7	43.0	39.6	44.8	40.5	34.3	34.7
Biosciences	52.9	53.0	44.7	41.5	47.0	42.5	36.0	35.2
All cost centres	52.9	52.4	45.0	44.2	46.4	44.7	35.8	35.9

* Academic staff are professors, senior lecturers, lecturers and researchers.

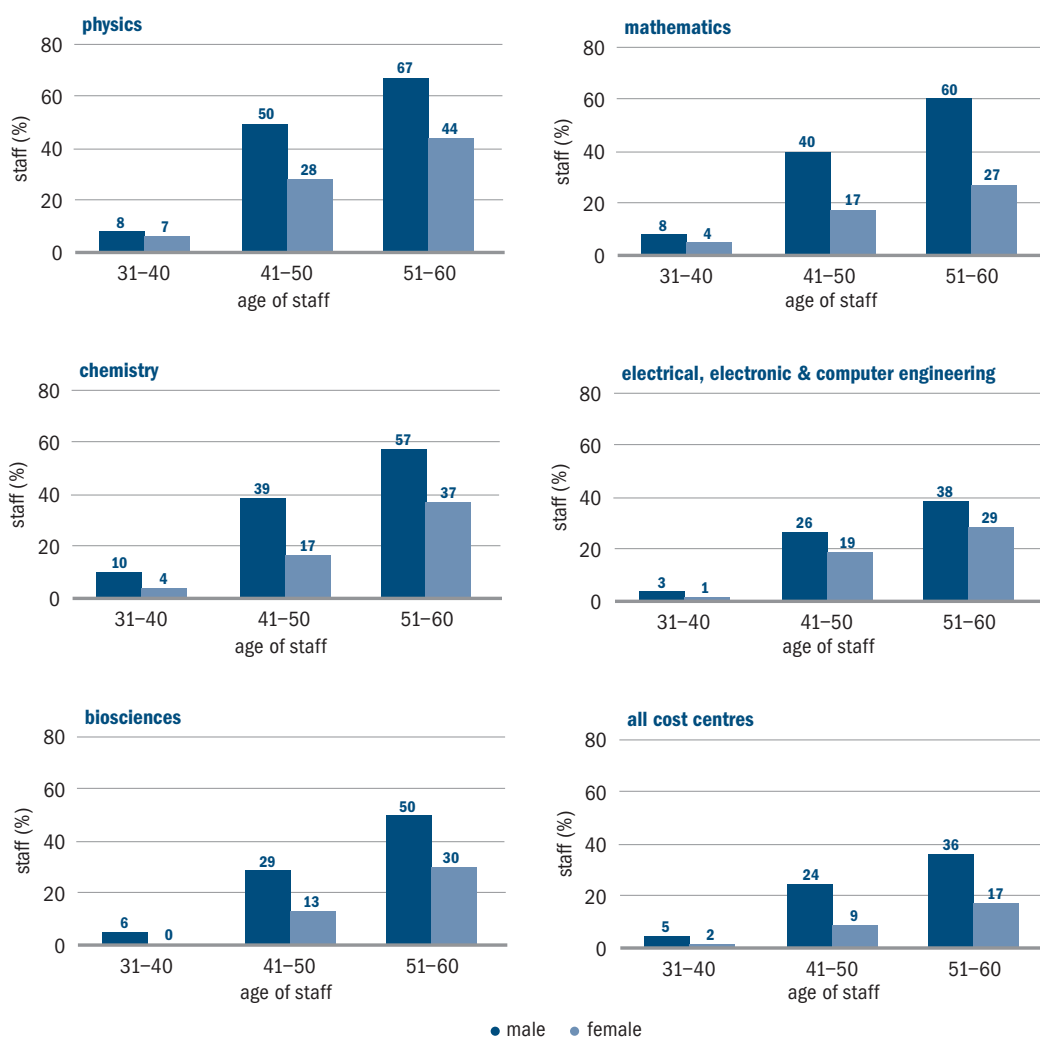
** Permanent academic staff are professors, senior lecturers and lecturers.

Source: HESA staff data

2: Physics staff in UK HEIs

Source: HESA staff data

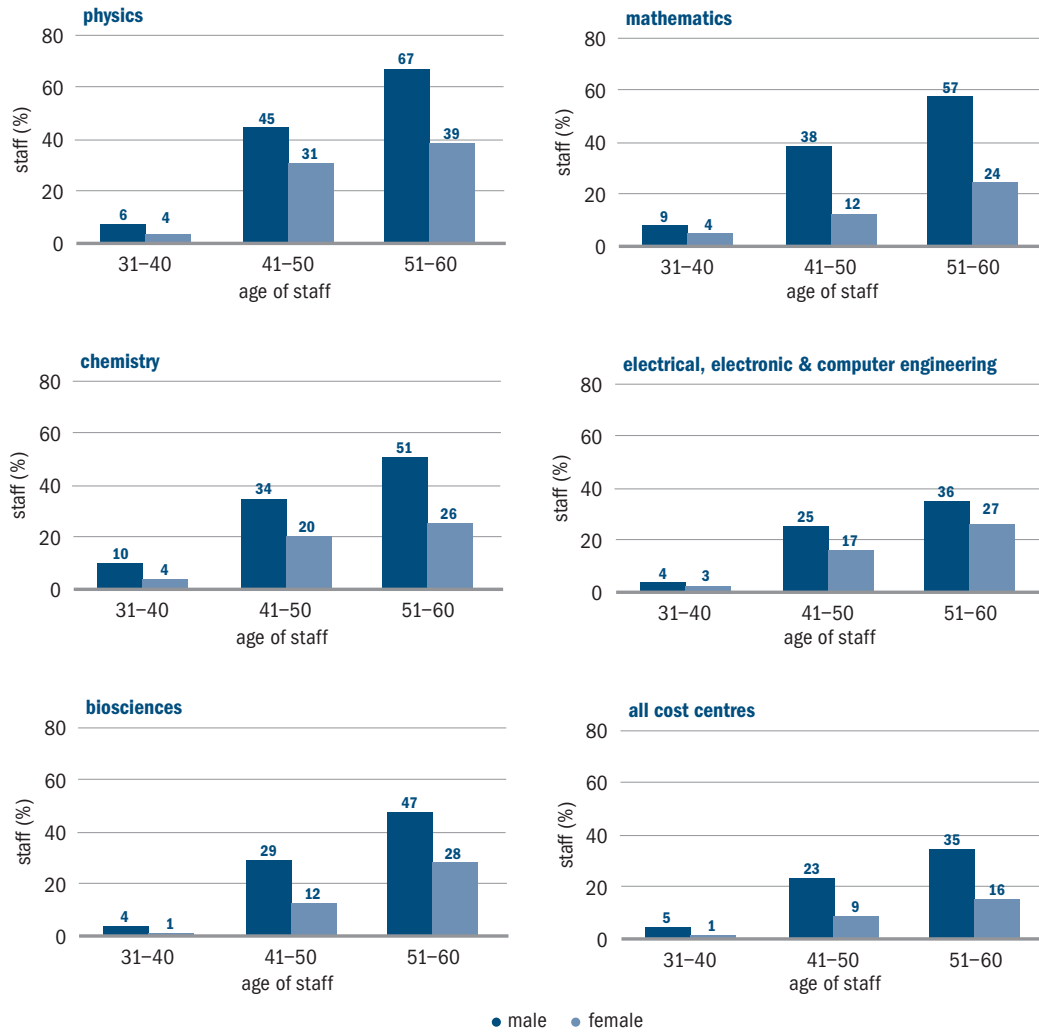
Figure 7: Proportion of male and female permanent academic* staff who were professors by age in selected academic cost centres 2011/12, excluding teaching-only staff



*Permanent academic staff are professors, senior lecturers and lecturers.

Figure 8: Proportion of male and female permanent academic* staff who were professors by age in selected academic cost centres 2009/10, excluding teaching-only staff

Source: HESA staff data

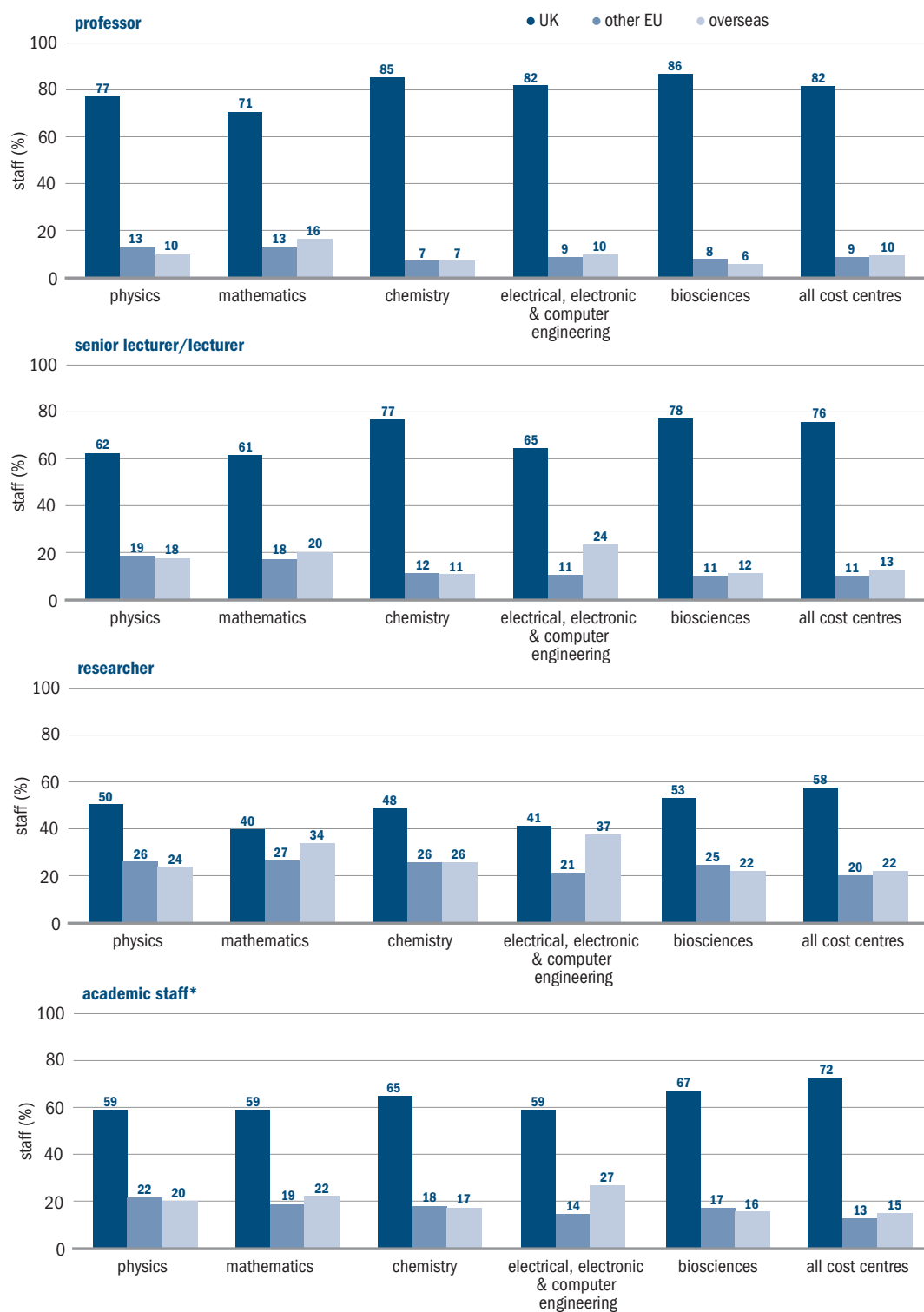


*Permanent academic staff are professors, senior lecturers and lecturers.

2: Physics staff in UK HEIs

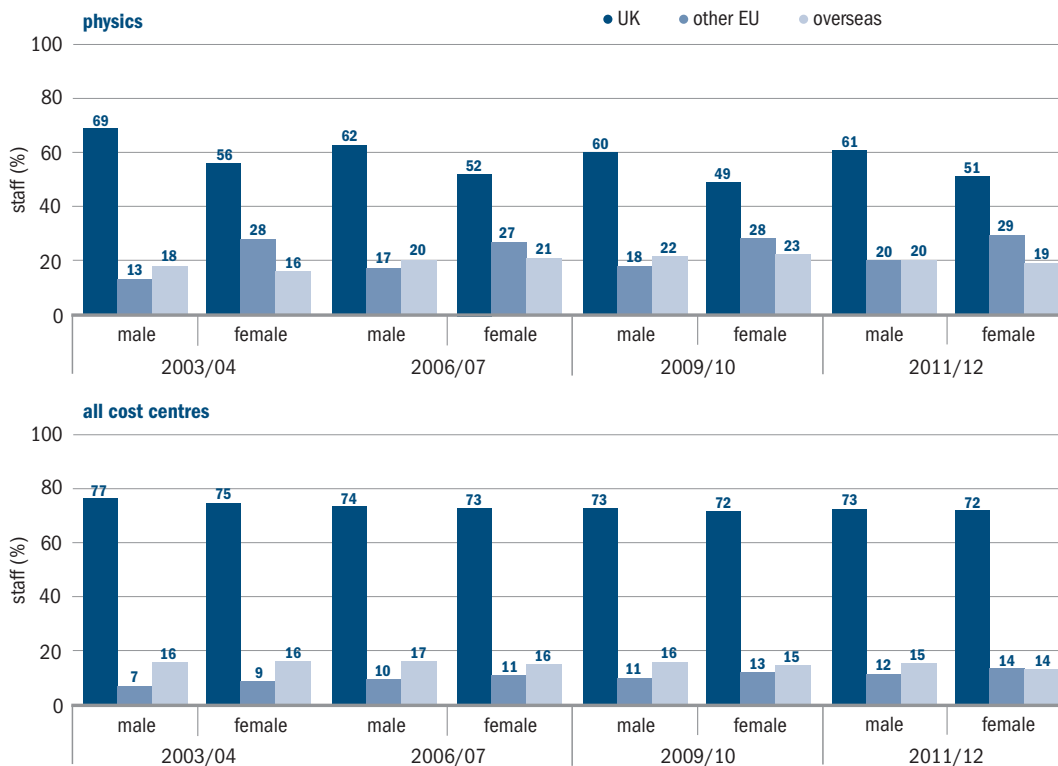
Source: HESA staff data

Figure 9: Nationality of all academic staff* by grade in selected academic cost centres 2011/12



*Academic staff includes professors, senior lecturers, lecturers and researchers.

Figure 10: Nationality of all academic staff* in physics and across all academic cost centres 2003/04 to 2011/12



*Academic staff includes professors, senior lecturers, lecturers and researchers.

2.5. Age and gender profiles of staff

Figure 7 and figure 8 show the proportions of male and female permanent academic staff, excluding teaching-only staff, at professorial level in age bands for 2011/12 and 2009/10, respectively. In each age group, and for all of the cost centres considered here, women are less likely to be professors than men, by a striking amount.

2.6. Nationality of staff

Figure 9 presents data on the breakdown by nationality and grade of selected cost centres.

Figure 10 shows the breakdown of all male and female staff in physics and all cost centres by nationality between 2003/04 and 2011/12. There are notable differences in the profiles for men and women in physics. Although the proportion of male non-UK nationals in physics has risen from 31% in 2003/04 to 40% in 2011/12; the proportion of female non-UK nationals has remained consistently higher rising from 44% in 2003/04 to 48% in 2011/12.

2.7. Ethnicity of staff

Table 12 shows a breakdown of physics staff by grade and ethnicity. Data for the ethnic breakdown of the UK population in 2011 aged 16–64 are also shown for comparison.

In 2011 86.0% of the UK population of all nationalities aged 16–64 was white. The data show that among UK national physics staff all BME groups, except the Chinese, are under-represented and black staff markedly so.

Table 13 shows the ethnicities of staff who are UK nationals in selected cost centres. With the exception of electrical, electronic & computer engineering, between 92% and 94% of staff in the selected cost centres are of white ethnicity, and, overall, 92% of staff across all cost centres are of white ethnicity. These proportions are higher than the proportion of white adults across the UK populations. However, the proportion of the population who are of white ethnicity rises with age. In the 2011 census, 92% of the population of England and Wales between the ages of 50 and 64 years was white.

2: Physics staff in UK HEIs

Source: HESA staff data and census 2011

Table 12: Ethnicity of all UK academic staff in the physics cost centre by grade 2011/12

Ethnicity	Grade				Ethnic groups in England and Wales 2011**
	Professor	Senior lecturer/lecturer	Researcher	Academic staff*	
White	95.8%	94.4%	92.8%	94.0%	86.0%
Asian	2.1%	2.0%	3.6%	2.7%	6.8%
Black	0.2%	0.5%	0.2%	0.3%	3.3%
Chinese	1.1%	1.7%	1.4%	1.4%	0.7%
Other/mixed	0.8%	1.4%	2.1%	1.5%	3.2%

*Academic staff are professors, senior lecturers, lecturers and researchers.
 **The most recent data on the ethnic make-up of the UK population is taken from the 2011 census.

Table 13: Ethnicity of all UK academic staff* in selected academic cost centres 2011/12

Ethnicity	Physics	Mathematics	Chemistry	Electrical, electronic & computer engineering	Biosciences	All cost centres
White	94.0%	93.3%	93.2%	83.4%	92.2%	92.3%
Asian or Asian British – Indian	1.6%	1.3%	1.4%	2.1%	1.9%	1.7%
Asian or Asian British – Pakistani	0.4%	0.3%	0.7%	0.6%	0.7%	0.5%
Asian or Asian British – Bangladeshi	0.1%	0.2%	0.1%	0.3%	0.2%	0.2%
Other Asian background	0.7%	0.8%	0.8%	2.8%	0.7%	0.8%
Black or black British – African	0.2%	0.3%	0.4%	0.7%	0.4%	0.6%
Black or black British – Caribbean	0.0%	0.0%	0.2%	0.4%	0.4%	0.5%
Other black background	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
Chinese	1.4%	1.8%	1.6%	5.7%	1.4%	1.2%
Other and mixed ethnic background	1.5%	2.0%	1.7%	3.9%	2.0%	2.2%

*Academic staff are professors, senior lecturers, lecturers and researchers.

Source: HESA staff data

For further information contact:

Tajinder Panesor

IOP Institute of Physics

76 Portland Place, London W1B 1NT

Tel +44 (0)20 7470 4800

E-mail tajinder.panesor@iop.org

www.iop.org

Charity registration number 293851

Scottish Charity Register number SC040092

The report is available to download from our website and if you require an alternative format please contact us to discuss your requirements.



The Kitemark is a symbol of certification by BSI and has been awarded to the Institute of Physics for exceptional practice in environmental management systems.

Certificate number: EMS 573735