School of Physics

Trinity College Dublin

Athena SWAN Trinity Physics and IOP Juno Leader: Professor Eithne McCabe

Email: Eithne.McCabe@tcd.ie

1. Letter of endorsement from the head of department: maximum 500 words

Coláiste na Tríonóide, Baile Átha Cliath
Trinity College Dublin
Ollscoil Átha Cliath | The University of Dublin

16 April 2015

Dear Athena SWAN Panel member,

Gender Equality, diversity and Athena SWAN are cornerstones of TCD's new strategic plan 2014-2019. Even before the launch of the College new Stratregic Plan, and long before Athena SWAN was formally launched in Ireland in 2015, gender equality was already a cornerstone of the activities of the School of Physics. Our School was already very focused on gender equality and trying to address issues facing females in Physics via its engagement in Juno initiatives. While in some ways we lead the national average, we still have a lot to do in Physics. Our efforts addressing some of issues facing females in Physics were recognised by Institute of Physics Juno Practitioner status in November 2013.

As Head of School I appreciate that engaging with Athena SWAN is enormously beneficial for the School. Our vastly improved quantitative and qualitative data collection and our leadership of University Physics data collection in Ireland means that we know and we will continue to know how we are performing locally and nationally. This informs School policy. Staff of all categories as well as undergraduate and postgraduate students will continue to form part of the Athena SWAN self-assessment team (SAT). There is a strong gender and academic mix from postdoctoral staff to Head of School as well as technical and administrative staff. There is strong overlap of personnel with particular management responsibilities on the School Executive with personnel on the SAT. This makes the implementation of SAT recommendations more seamless. It also ensures that School Executive decisions are informed by an Athena SWAN perspective, so that gender equality is firmly embedded in our School. When we consider teaching delivery, we consider gender impact. When we consider recruiting we consider gender and diversity issues. When we consider flexible working we look to best practice nationally and internationally also.

One of my goals as Head is to increase the numbers of talented students who choose to apply to study Physics in TCD. I initiated a new concept in early outreach STEM engagement with schoolchildren who attend our new weekend 'Trinity Walton Club'.

The Athena SWAN culture of the School meant that one of my key concerns was to ensure that that we have equal engagement from both genders. The Walton Club has also promoted a gender balance amongst its educators so that schoolchildren as young as fourteen see successful female rolemodels enjoying Physics. What better way to encourage a strong pool of females and males to apply study Physics in TCD in later years.

This is just one of many examples of the way Athena SWAN principles have become embedded in our School. This embedding already has a very tangible impact. We anticipate dividends as this

approach, along with the very many other initiatives for staff and students, will have a long-term impact on female participation in our School.

I wholeheartedly support the School's application for an Athena SWAN Silver award.

Professor Igor Shvets, Head of School

[Section1: 496 words]

Scoil na Fisice
Dámh na hInnealtóireachta, na Matamaitice agus na hEolaíochta
Coláiste na Tríonóide,
Baile Átha Cliath,
Ollscoil Átha Cliath,
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Figure 1: A group of TCD Walton Club "Alphas". The Trinity Walton Club is named after Nobel Scientist (Physics, 1951), Trinity student and Professor, Ernest T. S. Walton (courtesy Dr Arlene O'Neill)

2. The self-assessment process: maximum 800 words

Describe the self-assessment process. This should include:

2 (i) A Description of the Self-Assessment Team (SAT)

> *including members' roles (both within the department and as part of the team) and how and why the team were selected; for example, any consideration of gender balance, members' expertise or experience with gender and/or equality issues, work–life balance arrangements or caring responsibilities.*

Women in Physics/Athena SWAN/Juno committee member	**Relevant Roles and Responsibilities** ***a: Reporting to the Executive;*** ***b: Parent/caring responsibilities ;*** ***c: Dual-career families***
Prof Eithne McCabe	Chair SAT/Women in Physics(SATC), AS Champion. Committee memberships: TCD Equality, College AS/INTEGER, Executive Women in Technogy and Science, IOP Juno Assessment Panel [a,b,c]
Dr Shane Bergin	Senior Research Fellow and Postdoc Forum Leader (PFL)
Prof Louise Bradley	Director of Postgraduate Teaching and Learning (DPTL) [a,b,c]
Lauren Byrne	Undergraduate Student representative [a]
Mr Ken Concannon	Chief Technical Officer (CTO) [a,b,c]
Dr Evie Doherty	Postdoc Forum Leader (PFL)
Mr Luke Field	College Equality Officer, TCD Equality Committee (EO)
Mr Pierce Maguire	Postgraduate Representative
Prof Cormac McGuinness	Outreach coordinator (OC) [b,c]
Prof Charles Patterson	Director of Undergraduate Teaching and Learning (DUTL) [a,c]
Prof Igor Shvets	Head of School (HoS) [a,b,c]
Dr Colm Stephens	School Administrator (SA) [a,c]

Table 1: SAT Membership and Reporting Responsibilities

Seven of the self-assessment team (SAT) act on the School Executive and have key responsibilities in the management of the School, Table 1. Seven members have parental/caring responsibilities/dual-career families. Of the three permanent female academic staff in the School (2.5 FTE, one shared appointment) two female academic staff are on the SAT and have family responsibilities. The two Postdoc Forum leaders, one male, one female are both SAT members. The other committee members include the College Equality Officer, the outreach coordinator and the student representatives. The SAT/Women in Physics Chair (SATC) has been active in women in physics initiatives for over twenty years. She led a successful Juno Practitioner application in 2013. She was the first permanent female academic in TCD Physics and the first Physics staff member to

take maternity leave. She led the first all-Ireland team for the first IUPAP Women in Physics conference in Paris and acts on the national Executive of Women in Technology and Science, Ireland (WITS) as well as the IOP women in Physics Group committee and IOP Juno assessment panel.

2 (ii) An Account of the Self-Assessment Process

with details of:

- *when the team was established;*
- *how often the team has met;*
- *what the focus of the meetings has been;*
- *how the team has consulted with members of the department and students;*
- *what consultation (if any) has occurred with staff or individuals outside of the university/department;*
- *what the internal and external reporting mechanisms of the team are.*

The team was established in December 2012 and has met quarterly since then. The meetings were focused initially on activities related to the EU programme INTEGER and then became focused largely on the five Juno principles when a decision was taken to apply for Juno Practitioner. The SATC led a successful Juno Practitioner application in November 2013. National publicity and WiP networking amongst relevant groups outside College highlighted this work to a national audience.

The SAT consults with members of the School and students as in Table 2.

Consultation with	**Mechanism/route (SAT member responsible)**
Staff	School Executive (SATC)
	Undergraduate and Postgraduate Teaching and Learning committees (DUTL and DPTL)
	School committee (HoS)
	First Thursday coffee (SA)
Postdoctoral research staff:	The Postdoc Forum (PRLs)
Students	Undergraduate staff-student committee (DUTL)
	Postgraduate committee (DPTL)
Staff and students	Surveys, Focus groups and Women in Physics events (SATC)
Prospective and current students and staff	Outreach (OC), Women in Physics website (SA/SATC/all SAT)

Table 2: Team consultation with members of the department and students

All data collections done by AS team both within TCD and nationally have focused on administrative, technical, postdoc/research staff as well as academic staff to promote inclusivity. The SAT consults informally at daily coffee and particularly at our First Thursday coffee events where there is a particular focus on getting a critical mass of female researchers. A Communications Day was also initiated to communicate with all staff.

Since Juno was the first principle-led award initiative in TCD before the advent of Athena SWAN in Ireland, this necessitated significant external engagement by the SATC to advance our goals, Table 3.

The Provost, TCD
The Vice-Provost, TCD
The Director of Women in Science and Engineering Research (WiSER), TCD
The Chair of INTEGER, TCD
The Director of Science Foundation Ireland (SFI)
The former President of Ireland and TCD Chancellor, Mary Robinson
Dame Jocelyn Bell Burnell
WITS, Women in Technology and Science Ireland
Silicon Republic, Ireland's Technology News Service
IOP Juno assessment panel
IOP Women in physics Group committee
Irish Federation of University Teachers (IFUT)

Table 3: Consultation outside the School/University

The internal reporting mechanisms of the team are listed in Table 1. Figure 2 and Figure 3 outline other internal and external reporting routes/linkages of the AS committee.

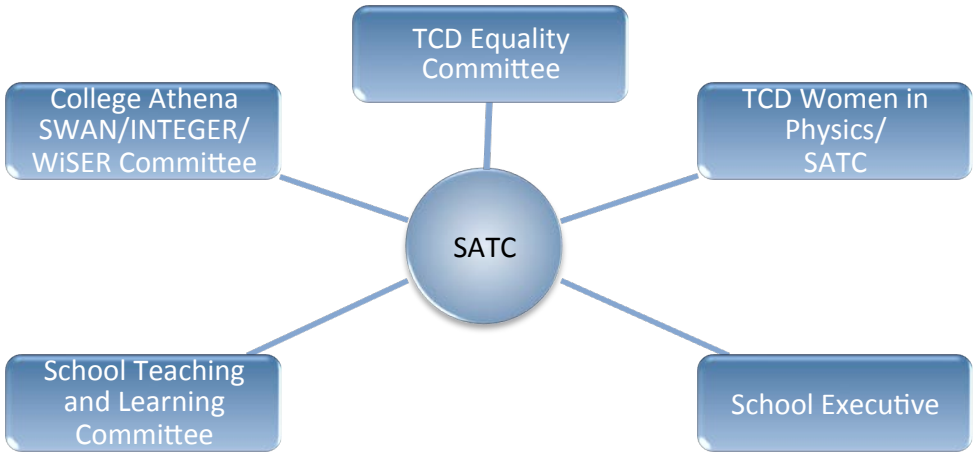


Figure 2: Internal and External (within College) reporting to School and College committees

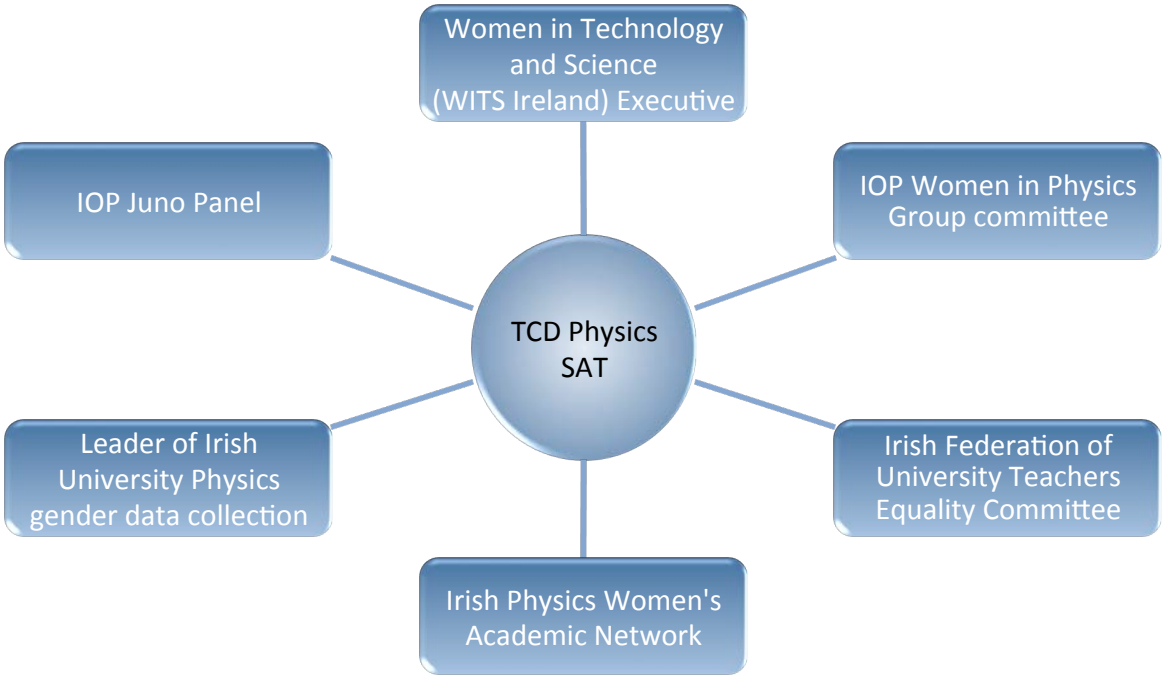


Figure 3: External (outside College) linkages with relevant national/international groups

2 (iii) Plans for the Future of the SAT

- *how often the team will continue to meet;*
- *how the SAT intends to monitor implementation of the action plan;*
- *how the SAT intends to interact with staff;*
- *whether the membership of the group will change;*
- *what the internal and external reporting mechanisms of the team will be.*

The team will continue to meet quarterly. Smaller sub-groups will review targets and progress on the action plan between team meetings. The SAT will continue to interact with staff via the interactions in Table 2, via the website and the annual School newsletter. The SAT membership is under constant review in terms of staff with caring responsibilities, staff categories, seniority and staff with key reporting roles.

Action 2.1: **Continuously review SAT membership**

Action 2.2: **SAT training and awareness for staff members**

Action 2.3: **SAT training for student members**

Action 2.4: **Funding/support for AS activities**

Action 2.5: **Interaction with other AS Schools**

The internal and external reporting structures will remain as in Table 1 and Figure 2. The SATC has built strong external links to national/international relevant groups, Figure 3.

These external linkages as play a very significant role in forging our ability to champion women in physics in an Irish context. “National” initiatives and “national” data collection, discussed later, refer to initiatives and data collections in the Republic of Ireland.

Some issues facing women in Physics can be resolved long-term via structural changes and culture changes at School level. However given the small size of University Physics Departments in Ireland, many issues need to be resolved at University level – hence our significant efforts engaging outside School level.

Impact:

- **The School leads national initiatives which support Athena SWAN and Juno principles and has strong external linkages to build upon best practice nationally and internationally**
- **The SAT leads national data collection**
- **The SAT leads the sharing of information via the initiation of an Irish Physics Womens Inter-University Network**
- **The SAT leads national Women in Physics events**

[Section 2: 831 words]

3. A Picture of the Department and its composition: maximum 2000 words

3.1 Brief description of the Department

To set the context for the application, please provide a brief description of the department, including its size, and outline any significant and relevant features. For example, recent changes of departmental structure or management, the existence of any quasi-autonomous groups or the management of split-site arrangements.

Where possible, for each of the following sections (3.2 and 3.3):

- *Provide data/statistics (numbers and percentages) for at least the past three years, with commentary on their significance. Where possible and relevant, use clearly-labelled graphical illustrations.*
- *Comment and reflect on the proportions/percentages of women and men compared with the national picture for the discipline(s). If benchmarking data is unavailable, or if it is felt that it may not be appropriate, a clear explanation must be provided.*
- *Comment and reflect on any differences in data for men and women.*
- *Comment and reflect on any differences in data for full- and part-time.*
- *Describe any initiatives implemented to address any possible imbalance and biases, and any impact to date.*
- *Comment upon any plans for the future, including how any gaps in the data will be addressed, and refer to specific, numbered actions that appear in the Action Plan.*

The TCD School of Physics is small compared to many UK departments with the following full time equivalent (FTE) staff: 22 permanent, 3.2 contract full-time equivalent academic staff, 8.54 administrative staff, 8 technical, 3 experimental officer staff, 57 postdoctoral research staff and 5.91 other research staff. Nobel Laureate, Prof. Ernest Walton was a former Head of School.

The School is spread over a number of buildings in College including the Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN). The Sami Nasr Institute for Advanced Materials houses the core of the School.

3.2 Student Data

Relevant gender disaggregated data is not available at national or local level. In 2013 the SATC initiated a data census day of 1 October for collection of TCD Physics data. In the absence of national Higher Education Authority (HEA) data, she also initiated a national University Physics department gender disaggregated data census date of 1 October. She executed national data collections since then and shares this data with all seven Irish University Physics Departments.

Action 3.1: **TCD national University Physics data collection**

3.2 (i) Numbers of men and women on access or foundation courses. N/A

3.2 (ii) Numbers of men and women undergraduate students – *full and part-time. Provide data on degree attainment and completion rate by gender.*

All our undergraduates are full-time.

The numbers of undergraduates taking final year undergraduate physics from 2009-2014 in all 7 Irish University Physics Departments (nationally) are shown in Table 4. 32% of all Irish University Physics undergraduate males and 32% of females have attended TCD 2009-2014, Table 4. TCD's percentage of females taking final year Physics fluctuates around the national average of approximately 23%, Figure 5.

Figure 4: Physics and Astrophysics Class of 2014

Students taking Final Year Physics	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2008-2014
TCD: Female	7	14	9	14	14	19	77
TCD: Total ∑	52	51	43	65	65	67	343
University 2: Female	1	2	4	4	4	3	18
University 2: Total ∑	16	8	15	16	16	23	94
University 3: Female	4	7	5	5	6	3	30
University 3: Total ∑	18	26	17	23	17	16	117
University 4: Female	8	2	7	8	12	5	42
University 4: Total ∑	26	20	24	18	46	36	170
University 5: Female	0	2	5	1	2	2	12
University 5: Total ∑	15	19	22	20	21	21	118
University 6: Female	9	7	5	7	8	11	47
University 6: Total ∑	15	16	14	28	28	25	126
University 7: Female	3	3	2	4	1	0	13
University 7: Total ∑	14	10	9	14	10	3	60

Table 4: Numbers of females and total numbers taking final year Physics in all 7 Irish University Physics Departments 2009-2014
(National Physics data source: SATC)

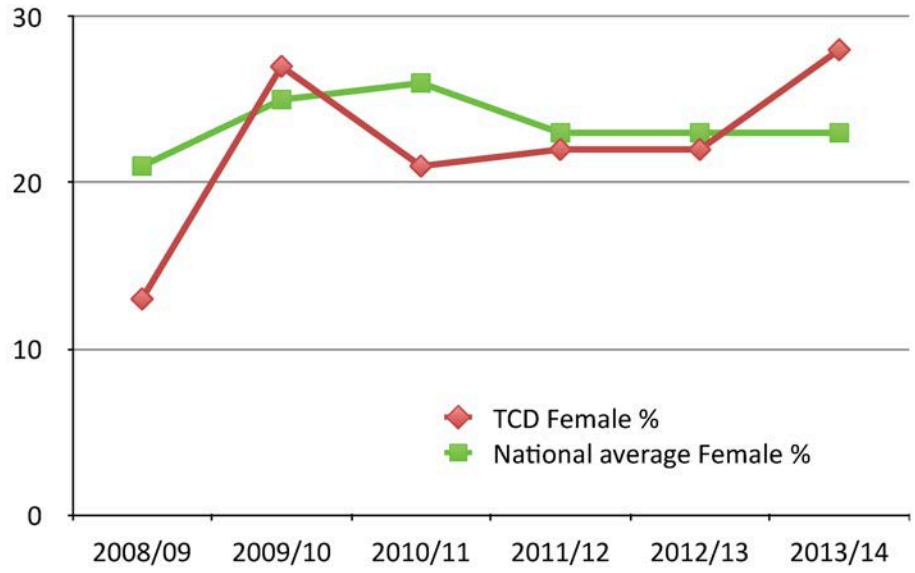


Figure 5: Percentage of females taking final year physics 2009-2014, TCD and nationally

Action 3.2: **Undergraduate recruitment target**

Figure 6 and Table 5 show the percentages and numbers of male and females obtaining II.1 or above (II.1+) in TCD, 2009-2014.

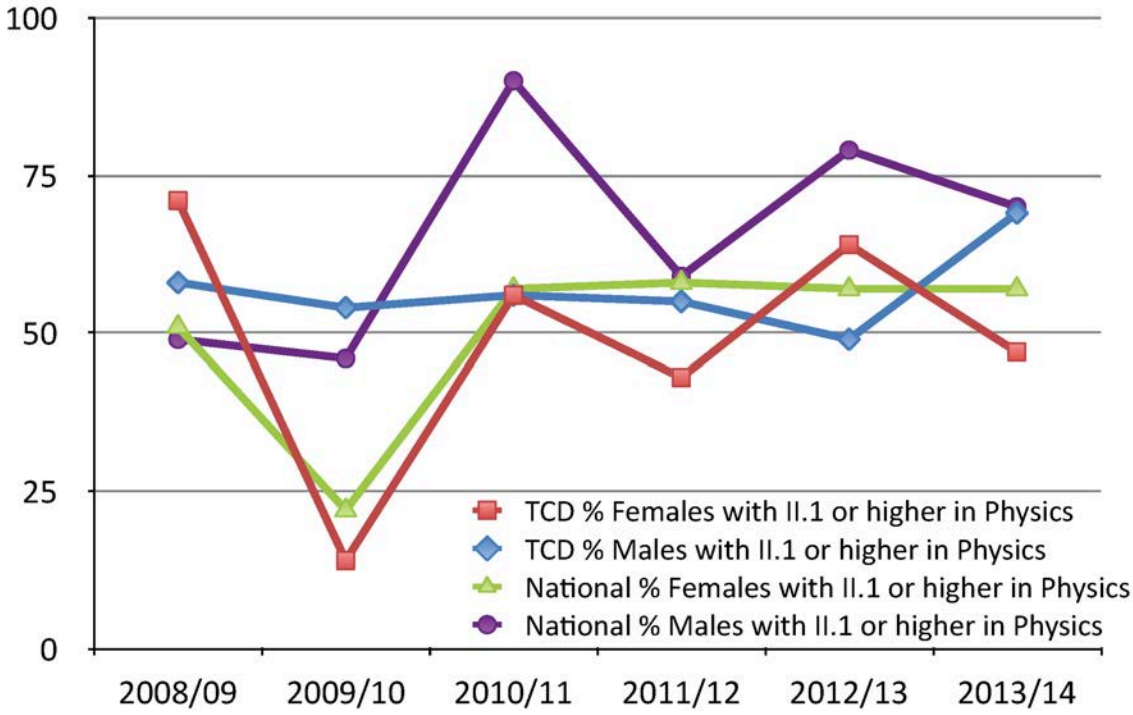


Figure 6: Percentage of TCD female, TCD male students and national female students who obtain a 2:1 or higher in Physics degrees, 2009-2014

TCD Graduating Student Numbers in Physics	2009	2010	2011	2012	2013	2014	Total 2009-14
Female with II.1 or higher	5	2	5	6	9	9	36
Total with II.1 or higher	31	22	24	34	34	42	187
Male with II.1 or higher	26	20	19	28	25	33	151

Table 5: Numbers of Physics students in TCD obtaining a II.1 or higher

Due to fluctuations in the small numbers of females, we examined six-year cumulative data in Table 6.

TCD Graduating Physics Students over six years 2009-2014	% for Males	% for Females
II.1 and above (II.1+)	57%	48%
II.2 and below	43%	52%

Table 6: Percentage of Females and Males in TCD obtaining II.1 and above 2009-2014

TCD females obtained a lower percentage II:1+ grades than females nationally 2009-2014, Figure 7. TCD males obtained a lower percentage 2:1+ grades than males nationally. Females appear to underperform males at higher degree grades in TCD and nationally. However the TCD gender discrepancy in Physics degree performance at II.1+ (10%) is less marked than the national average discrepancy (15%).

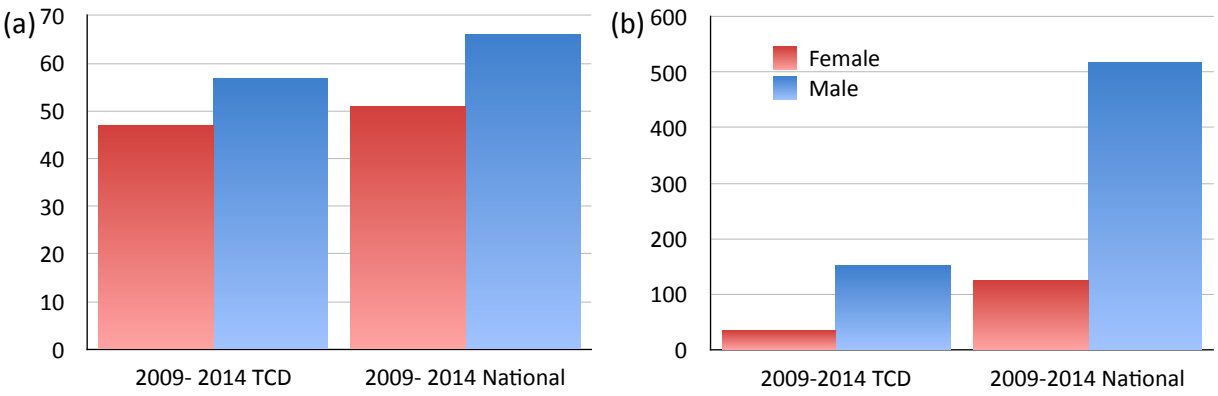


Figure 7: Six year data (2009-2014) of Females and Males obtaining Physics degrees with 2:1 and above, TCD and nationally in all 7 Irish University Physics Depts. (a) Percentages (b) Total Number

The lower II:1+ percentages for both TCD males and females compared to national percentages are in contrast to the TCD entry points (sum of finely graded Leaving Certificate results) required to study Physics in TCD via Science (leading to Physics and Physics and Astrophysics degrees), Nanoscience Physics and Chemistry of Advanced Materials (NPCAM) and Theoretical Physics (TP). All routes to a TCD Physics degree require points within the top 10% nationally. In 2014 NPCAM required points within the top 1% nationally.

Action 3.3: **Examiners' meetings: awareness of degree performance and gender**

Action 3.4: **Undergraduate performance data in conjunction with completion and progression rates**

This gender difference led to a very detailed analysis of TCD undergraduate performance across all four undergraduate years, all physics degree types and over the six year annual examination period 2009-2014 inclusive. This was a very significant, time-consuming undertaking using a legacy and new College information system (live from 2013).

Action 3.5: **Easier access to gender disaggregated data on College system (SITS)**

The Degree Profile

Given fluctuations with low female numbers, six-year data was gathered, giving sample one-year data. Over the last cumulative six-year period in TCD Physics, the degree grade profile across all Physics degrees for males and females is different with a scissors type profile at upper grades, Figure 8. Males dominated the first class category and obtained a higher percentage of combined II:1+ grades.

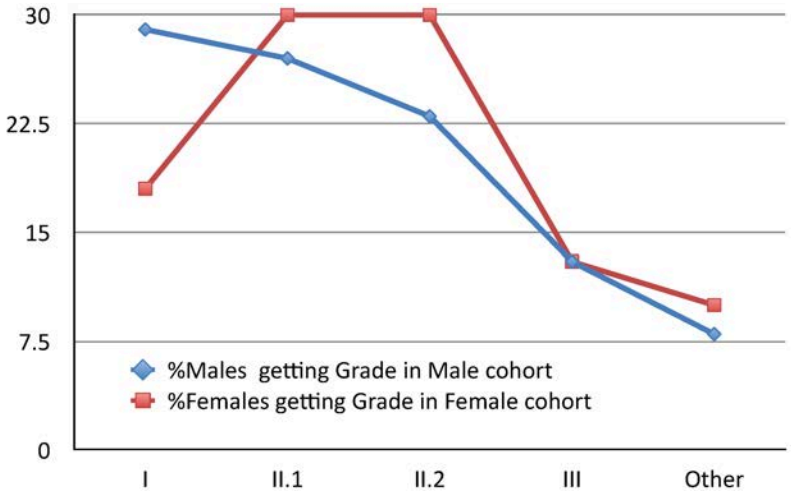


Figure 8: TCD Degree grade comparison six years 2009-2014: percentage females and males

As an example the 2014 only data across all TCD Physics degreees looks similar, Figure 9.

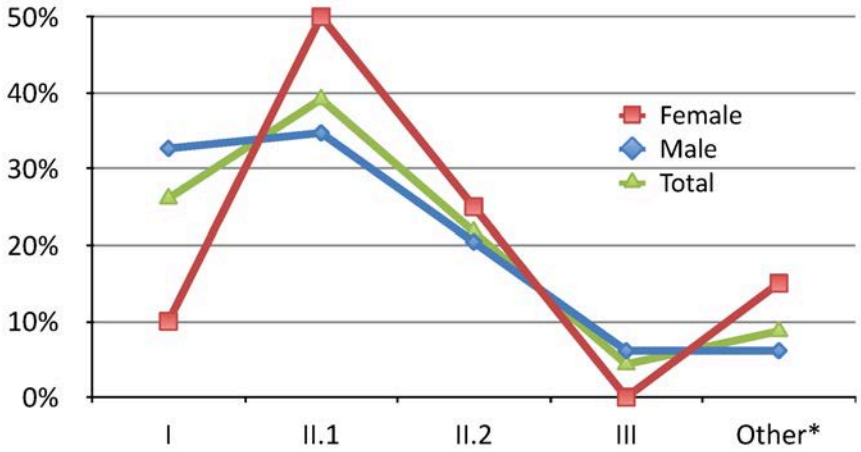


Figure 9: Percentage of each TCD grade awarded in 2014 amongst male cohort, female cohort and overall

We first investigated for any evidence of gender bias. Annual examination assessment is anonymous. However, final year (SS) project examination is not, involving a moderated multiple assessor process. A resource intensive initiative in the School investigated the grades of SS projects over six years.

Figure 10 shows no gender discrepancy in the SS project grades across all degrees. We observed no significant gender project grade discrepancy amongst specific degree types either, Figure 11.

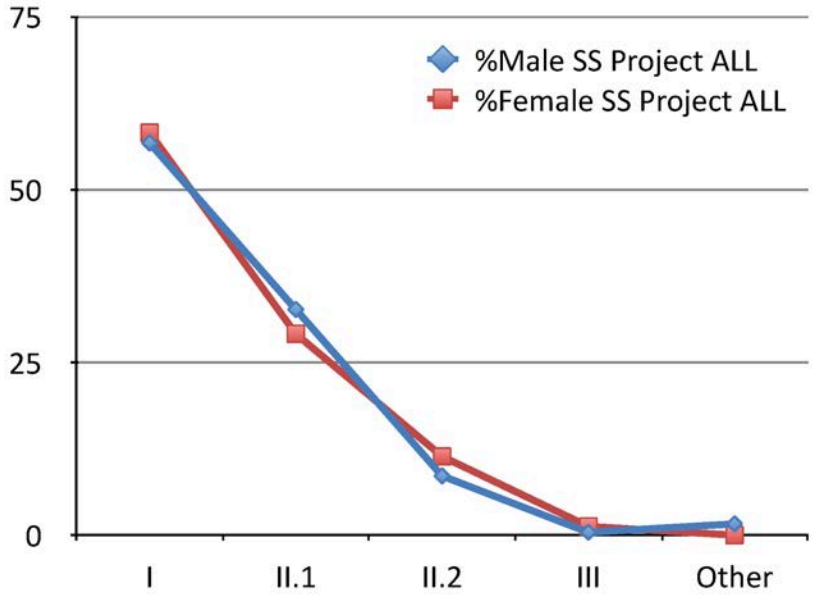


Figure 10: Percentage males and females Final Year (SS) Project grades for all TCD Physics degrees - Physics, Physics and Astrophysics (Astro), Theoretical Physics (TP), (Nanoscience) Physics and Chemistry of Advanced Materials ((N)PCAM) - over the six-year period 2009-2014

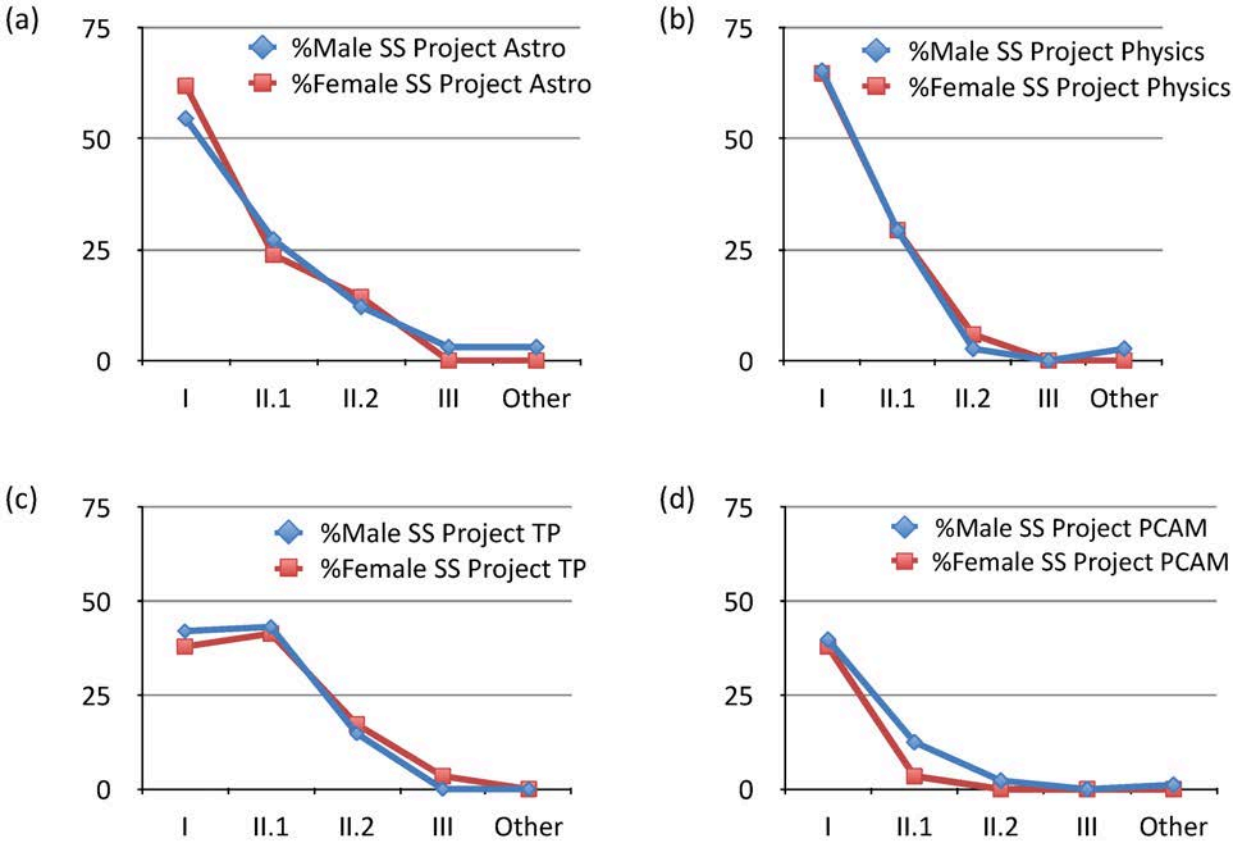


Figure 11: Breakdown of percentage males and females Final Year (SS) project grades 2009-2014: (a) Physics & Astrophysics (b) Physics (c) Theoretical Physics (d) (N)PCAM

Third year (JS) Performance

We investigated the six-year grade profile for the third year (JS) annual examinations.

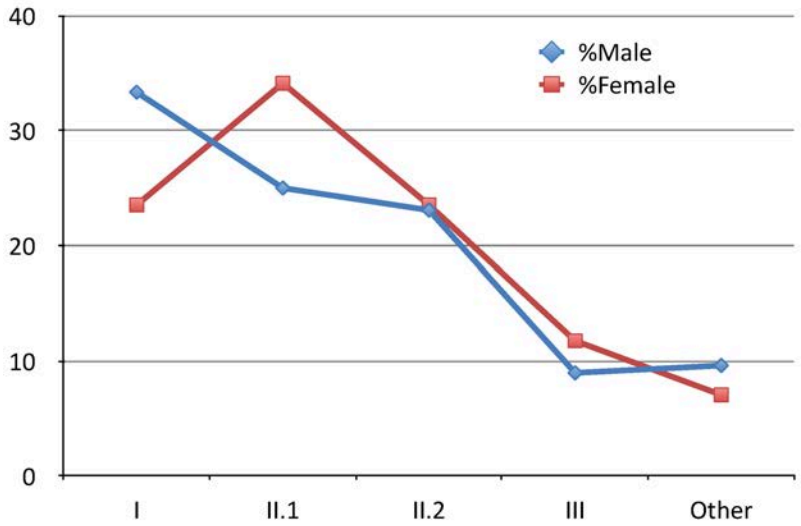


Figure 12: Percentage males and females Third Year (JS) grades for all TCD Physics degrees (Astro, Physics, TP, (N)PCAM) over six-year period 2009-2014

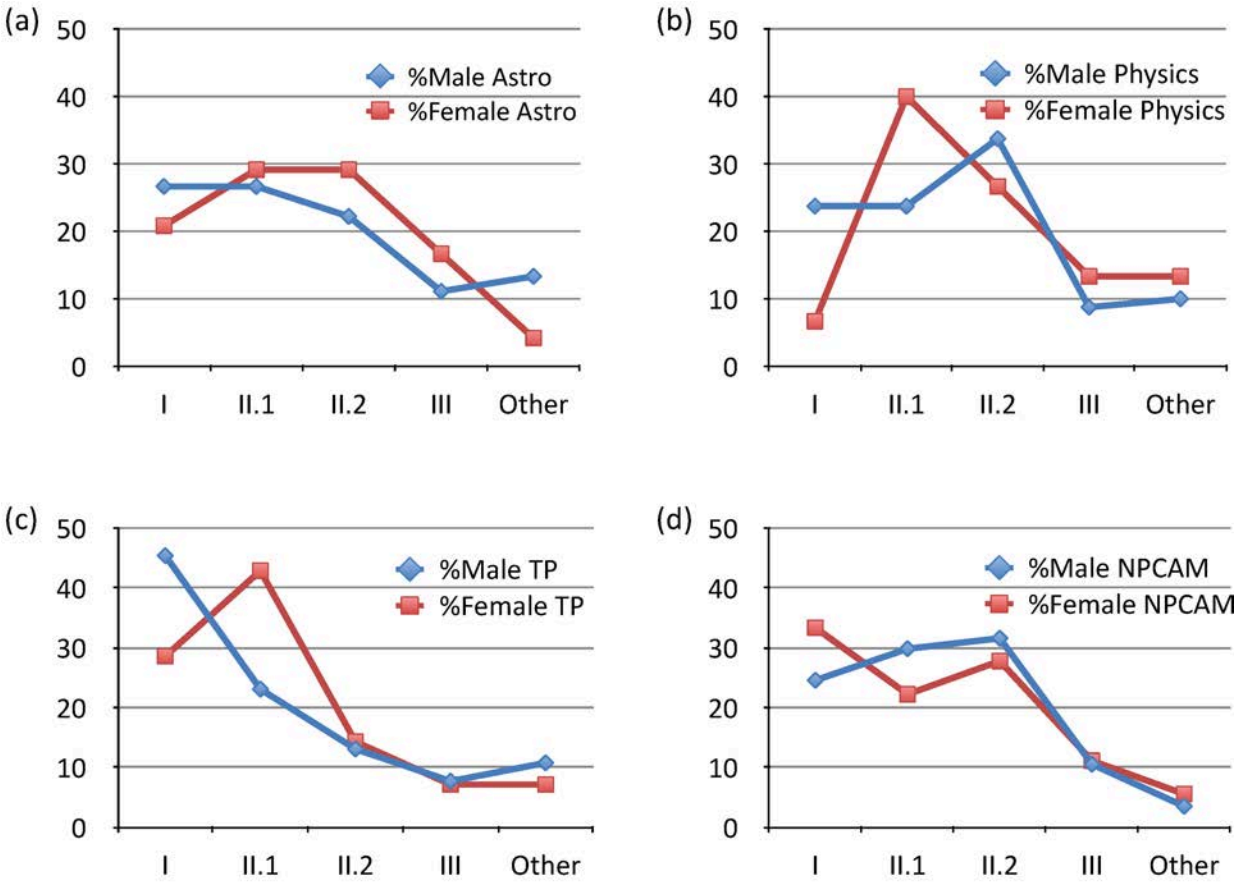


Figure 13: Breakdown of percentage males and females Third Year (JS) grades 2009-2014: (a) Physics & Astrophysics (b) Physics (c) Theoretical Physics (d) NPCAM

Again we observe a familiar scissors pattern at I/II.1 level for all degrees other than NPCAM.

Second Year (SF) Performance

We see small gender differences at II.1+ in the two Senior Freshman (SF) second year modules, Figure 14. The male performance is more uniform across classification grades while females appear to outperform males at lower grades.

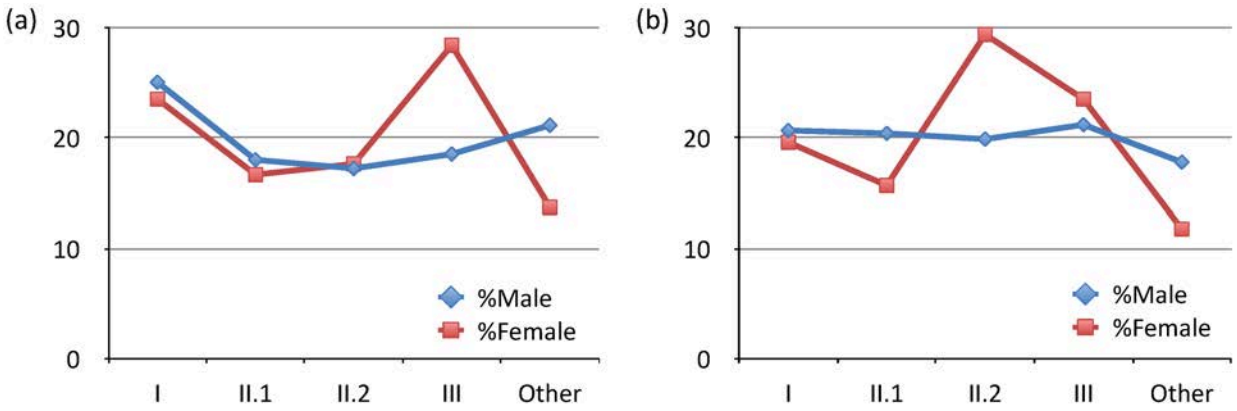


Figure 14: (a) SF MODULE 1 (PY2P10, PY2N10, PY2T10) percentage grades by gender 2009-2014 (383 male/102 female) (b) SF MODULE 2 (PY2P20, PY2N10, PY2T10) percentage grades by gender 2009-2014 (382 male/102 female)

First Year (JF) Performance

JF examination performance profiles for 2009-2014 are extremely similar for both genders.

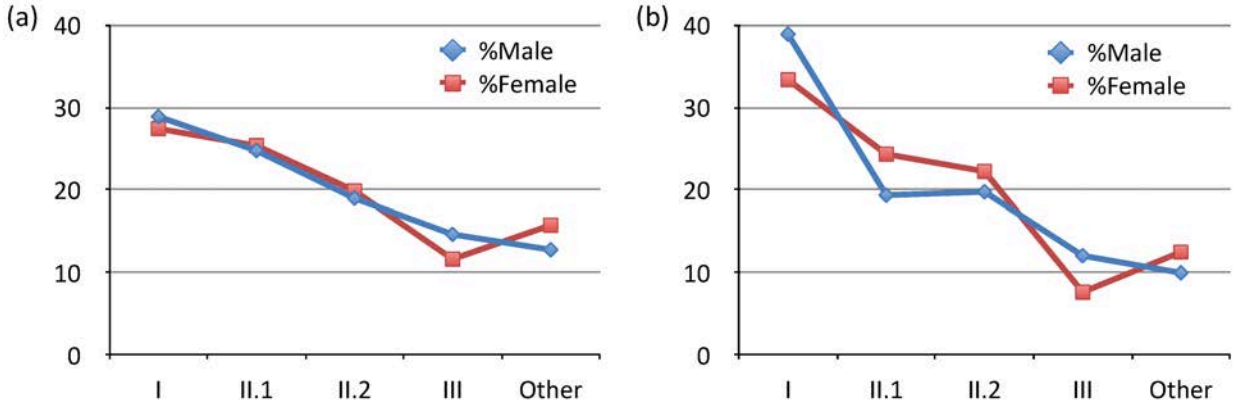


Figure 15: (a) JF MODULE 1 (PY1P10, PY1N10, P1T10) PERCENTAGE GRADES BY GENDER 2009-2014 (485 males/146 females) (b) JF MODULE 2 PY2P20, PERCENTAGE GRADES BY GENDER 2009-2014 (481 males/144 females)

Retention/completion rate

We investigated undergraduate retention by gender from the first annual examination JF to SF and JS summer annual examinations. Again we examined six-year data 2009-2014 to smooth out inevitable fluctuations. The results surprised us.

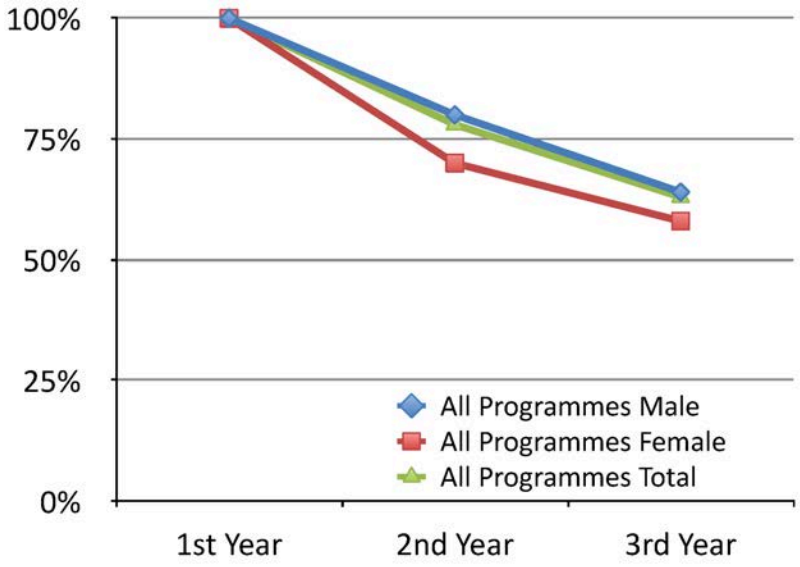


Figure 16: Retention 2009-2014 All Physics Routes

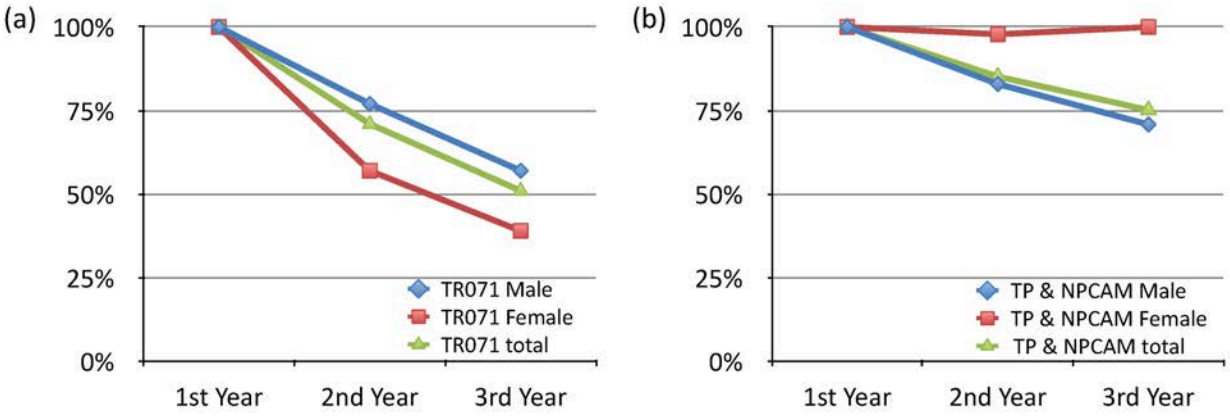


Figure 17: Retention 2009-2014 (a) JF Science (TR071) to JS Astro+JS Physics (b) Combined TP & NPCAM cohort.

Science (TR071) students can choose other degree options in later years. In the period 2009-2014 321 students took Science First Year (JF) examinations (31% female). We expected to observe retention issues at the end of second year when Science students make their major degree choice stage. However the retention at the end of SF seems robust. One would expect that Physics would lose well over 50% of students to either Chemistry or Geology or Biology. Instead we only lose 30% at this stage losing males and females at similar rates.

However the Science student retention from first to second year is 78% for males and 57% for females, Figure 17(a). Both figures fall below the faculty Science retention rate of 91% from JF to SF annual examinations.

Figure 17(b) shows retention data for combined TP and NPCAM courses. Note that that there is some small element of transfer between courses.

Male and female Physics performance is similar in first year. However it appears that we have lost a disproportionate number of Science females after first year examinations at the end of first year. In later years females appear to underperform. These issues may not be unrelated. We need to consider the possible effects of gender retention on gender performance statistics. We need to

rule out the possibility that we are losing some of our best female students from the Science cohort in Freshman years.

Action 3.6: **Single cohort degree data tracking**

Action 3.7: **Course content, delivery and gender**

Action 3.8: **Gender performance differences: soft data**

Action 3.9: **Physics Science student leavers' grades**

Action 3.10: **Undergraduate gender leaver differences: soft data**

3.2 (iii) Numbers of men and women on postgraduate taught degrees *– full- and part-time. Also provide data on degree attainment and completion rate by gender.*

N/A

3.2 (iv) Numbers of men and women on postgraduate research degrees *– full- and part-time. Also provide data on completion rate by gender.*

One postgraduate student registered for a PhD is part-time. She is also a technical staff member.

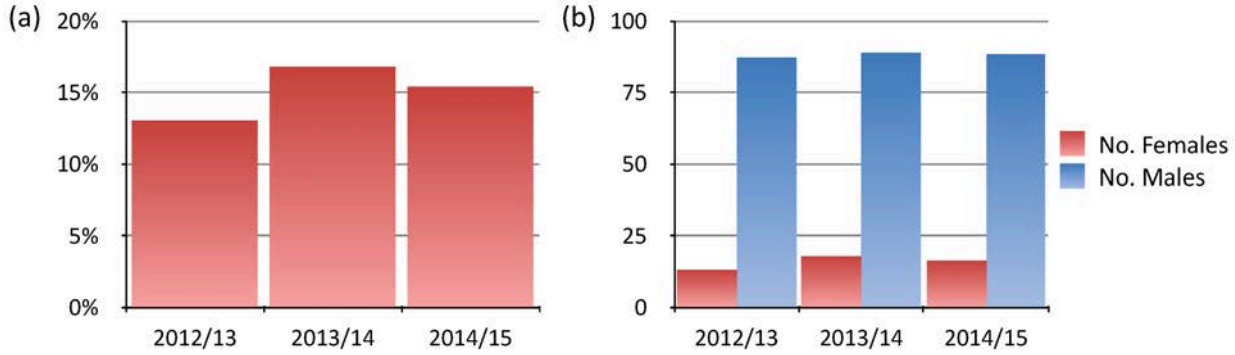


Figure 18: (a) Percentage TCD Physics registered Postgraduates who are female (b) Numbers of TCD Physics registered postgraduates

Figure 18 shows the percentage of registered female postgraduates fluctuated from 13% to 17% during the last three years and the number of female postgraduates registered over this period varied from 13 to 16. This number is so small and fragile that the loss of a single female is significant.

Table 7 shows 26% of PhD graduates in TCD Physics 2009-2014 are female. TCD's female percentage broadly follows the national trend apart from the last two anomalous years, Table 8. This percentage dovetailed well with the average percentage of female undergraduates around 23%. The current percentage of females enrolled for PhDs is significantly lower, however, and will result in significantly reduced female PhD graduates in the future. The severe economic downturn happens to be coincident with the drop in female participation as registered postgraduate students. We do not have national data for registered phD students, only PhD graduates, so it is possible that this has also been a recent national trend which will emerge in PhD graduate data in due course. Whatever the cause, it is clear that increasing the numbers and percentages of female PhD students is a priority.

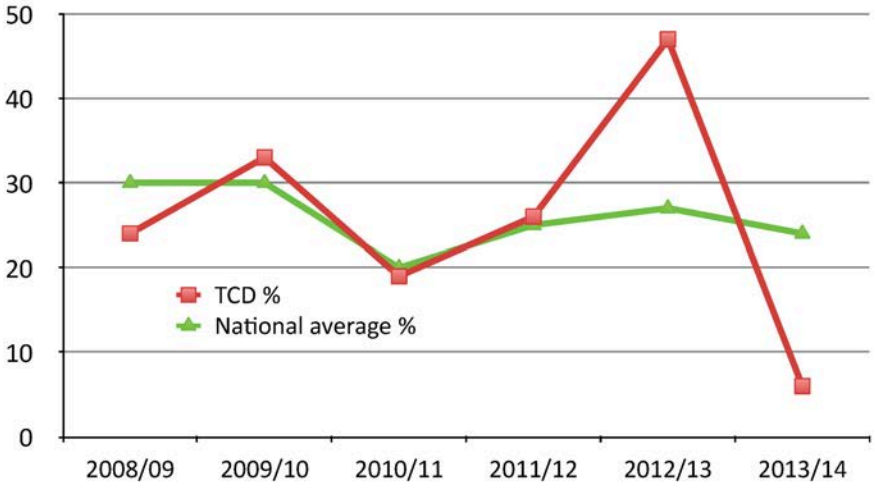


Figure 19: Percentages of females obtaining Physics PhDs in TCD and nationally

Numbers of TCD PhD Graduates	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2008-14
Female	5	5	3	7	8	1	29
Male	16	10	13	20	9	15	83
Total ∑	21	15	16	27	17	16	112

Table 7: Numbers of TCD PhD Graduates 2008-2014

Percentage obtaining PhD who are female	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
TCD	24%	33%	19%	26%	47%	6%
National average	30%	30%	20%	25%	27%	24%

Table 8: Percentages obtaining PhDs who are female, TCD and national

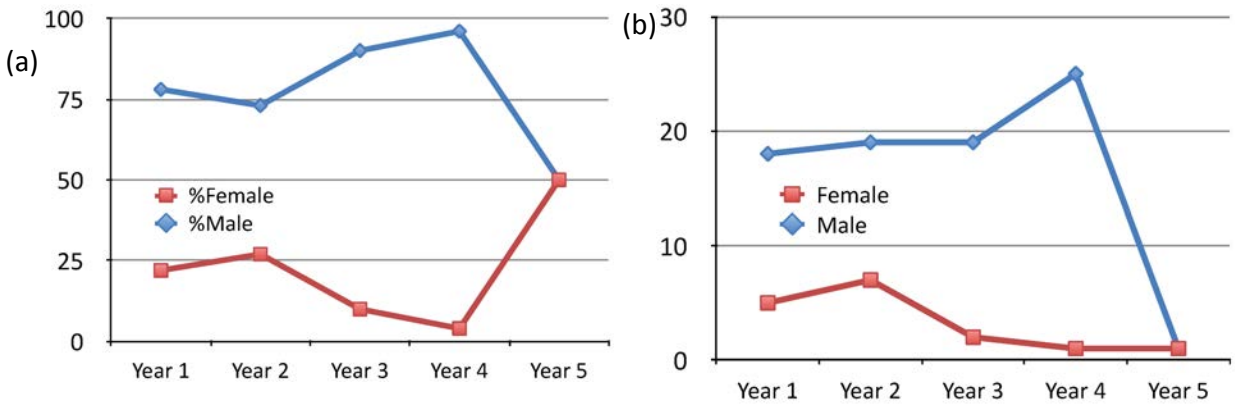


Figure 20: (a) Percentage TCD postgraduate students by gender and Year of Study Nov. 2014
(b) Numbers of TCD postgraduate students by gender and Year of Study Nov. 2014

Figure 20 (a) shows the relative percentages of male and female postgraduate students registered in years 1 through 5. Figure 20 (b) shows the corresponding numbers. Our PhD programme is of four years duration. Year 5 is an extension, hence the low numbers in fifth year.

In the last three years the average number of registered PhD students is aproximately 104. We have very small numbers of students (approximately 1% both male and female) obtaining M.Sc. degrees by research during this period, Table 9.

Year	No. Students obtaining M.Sc. Females	No. Students obtaining M.Sc. Males
1 Oct 2014	1	0
1 Oct 2013	0	1
1 Oct 2012	0	0

Table 9: TCD Postgraduate Student numbers obtaining M.Sc by research

In the past three years 3 females and 8 males have left without a postgraduate degree, Table 10. During that period 16 females and 44 males graduated with PhD degrees This represents a potential loss of approximately 19% of the female and 18% of the male postgraduate student population, a negligible gender disparity in completion rate.

Year	Leaving without M.Sc. or PhD Females	Leaving without M.Sc. or PhD Males
1 Oct 2014	0	1
1 Oct 2013	1	3
1 Oct 2012	2	4

Table 10: TCD Postgraduate Student numbers leaving without M.Sc. or PhD

Action 3.11: **Female point of contact for female postgraduate students**

Action 3.12: **Female postgraduate student recruitment**

Action 3.13: **Postgraduate leavers without degrees**

3.2 (v) Ratio of course applications, offers and acceptances by gender for undergraduate, postgraduate taught and postgraduate research degrees *– comment on any differences between application and success rates.*

Undergraduate entry to TCD and other Irish Universities is entirely different to the UK system. Entry is gender blind and is determined anonymously according to a finely graded national "points" system by the Central Applications Office. This system offers transparent third level admissions. However this complex system means that there is little relevant data on applications and success rate or gender available.

While there is a College process for dealing formally with postgraduate applications, these applications usually only make it to that process if they have had informal support locally at School level and are directed to the formal College process. For that reason there is no meaningful difference between formal appplication rate and success rate. For that reason the formal

application gender data is reflected in Figure 20 where Year 1, 2, 3 denote 2014, 2013 and 2012 entrants respectively. There is currently no application system applicable at local School level to capture all applications by number and gender.

Action 3.14: **Postgraduate Application data**

3.3 Staff data

3.3 (i) Proportion of all categories of academic staff by gender *– Look at the career pipeline and comment on and explain any differences between men and women. Where relevant, comment on the transition of technical staff to academic roles. Identify any issues in the pipeline at particular grades/levels.*

While we present three-year TCD staff data, we can only benchmark staff data for 2013 and 2014 – we initiated national benchmarking data on 1 Oct 2013.

The numbers and gender profile of permanent academic staff have not changed significantly over three years, Figure 21, Table 11 and Table 12 – see Government Employment Control Framework in 4.1.

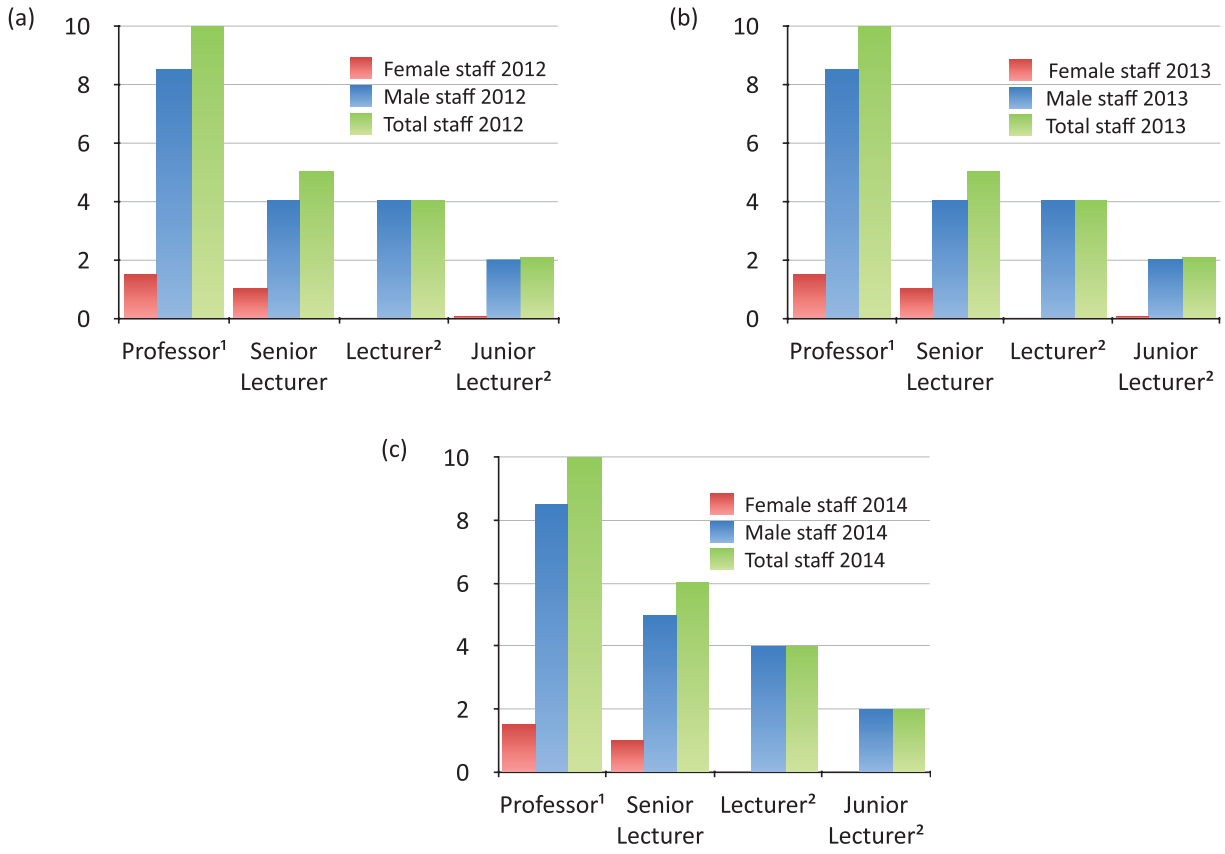


Figure 21: TCD Physics Permanent Academic Staff Numbers (a) 1 Oct 2012 (b) 1 Oct 2013 and (c) 1 Oct 2014 (Note 1: Professor includes Associate Professor, Note 2:junior lecturer; below "merit bar")

Permanent Academic Staff (FTE) Grade 1 Oct 2014	Professor[1]	Senior Lecturer	Lecturer[2]	Junior Lecturer[2]
Female staff	1.5	1	0	0
Male staff	8.5	5	4	2
Total staff	10	6	4	2
Percentage female	15	17	0	0

Table 11: TCD Permanent Academic Staff Numbers 1 Oct 2014

Permanent Academic Staff (FTE) Grade 1 Oct 2012 and 1 Oct 2013	Professor[1]	Senior Lecturer	Lecturer[2]	Junior Lecturer[2]
Female staff	1.5	1	0	0.1
Male staff	8.5	4	4	2
Total staff	10	5	4	2.1
Percentage female	15	20	0	5

Table 12: TCD Permanent Academic Staff 1 Oct 2012 and 1 Oct 2013 (Note 1: Professor includes Associate Professor, Note 2:junior lecturer; below "merit bar")

TCD Physics matches the national 2014 gender profile at higher grades of permanent academic staff but falls below the female percentage at other grades, Figure 22. We have 2.5 FTE permanent female academic staff, none at lecturer or junior lecturer level (similarly for 2013).

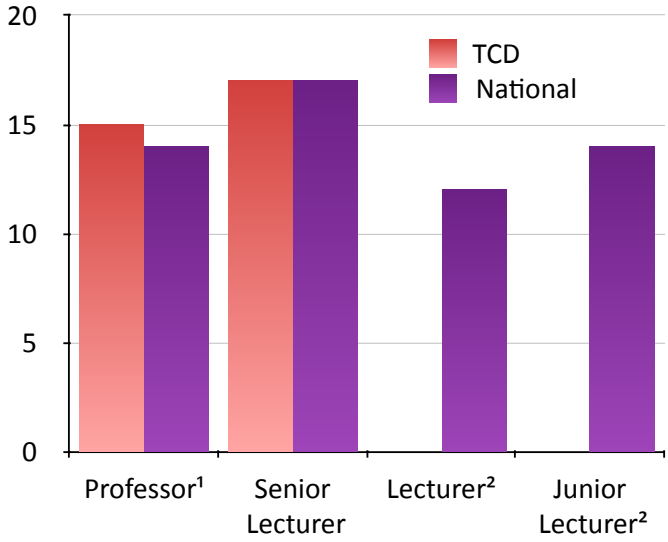


Figure 22: Percentage Female Permanent Academic Staff TCD benchmarked nationally (Irish Republic Universities) 2014

Our contract academic staff numbers have increased at Junior lecturer level, Table 13 and Table 14.

Contract Academic Staff (FTE) Grade 1 Oct 2014	Professor[1]	Senior Lecturer	Lecturer[2]	Junior Lecturer[2]
Female staff ♀	0	0	0	1
Male staff	0.2	0	0	2
Total staff ∑	0.2	0	0	3
Percentage female	0	N/A	N/A	33
Percentage Male	100	N/A	N/A	67

Table 13: TCD Contract Academic Staff 1 Oct 2014 (Note 1: Professor includes Associate Professor, Note 2:junior lecturer; below "merit bar")

Contract Academic Staff (FTE) Grade 1 Oct 2013 and 1 Oct 2012	Professor[1]	Senior Lecturer	Lecturer[2]	Junior Lecturer[2]
Female staff	0	0	0	0
Male staff	0.2	0	0	0
Total staff	0.2	0	0	0
Percentage female	0	N/A	N/A	N/A
Percentage Male	100	N/A	N/A	N/A

Table 14: TCD Contract Academic Staff 1 Oct 2013 and 1 Oct 2012 (Note 1: Professor includes Associate Professor, Note 2:junior lecturer; below "merit bar")

TCD Physics contract academic staff (3.2FTE in 2014) represent 13% of the total pool of academic staff. Most contract academic staff (3FTE) are at Junior Lecturer level. 33% of these are female.

The Pipeline from Final Year Undergraduate to Professor

We consider indicative 2014 and 2013 census data to draw female pipelines from final year undergraduate to Professor, Figure 23 and Figure 24. From 2013-2014 the number and percentage of female PhD graduates and postdoctoral percentage has dropped significantly. There has been zero permanent staff recruitment in recent years. TCD Physics pipeline issues begin at postgraduate level and are critical at every level after that.

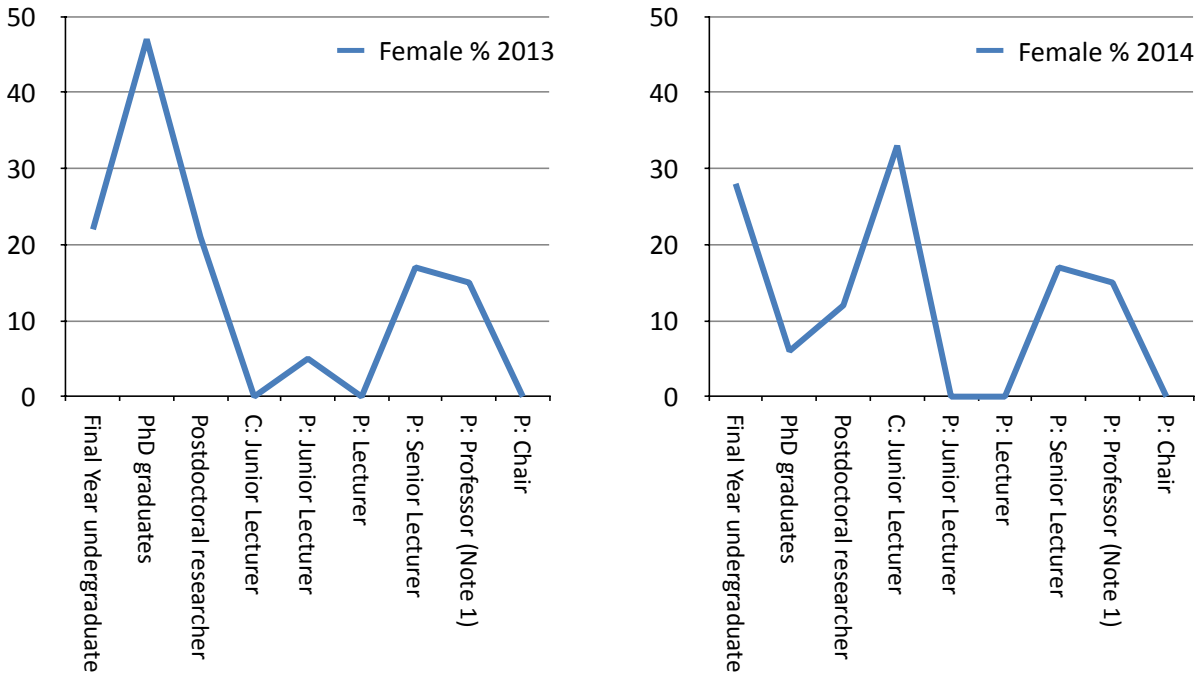


Figure 23: Female Percentage Pipeline from Final Year Undergraduate to Professor (C:Contract, P:Permanent) 1 Oct 2013 and 1 Oct 2014

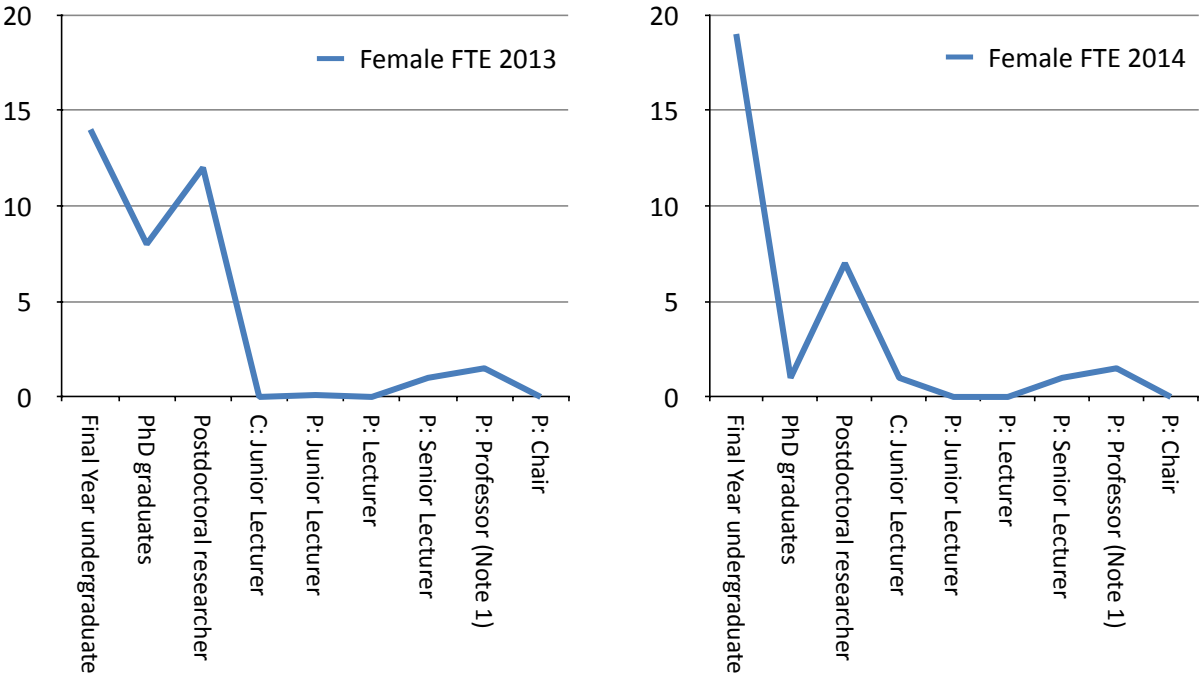


Figure 24: Female FTE Number Pipeline from Final Year Undergraduate to Professor (C:Contract, P:Permanent) 1 Oct 2013 and 1 Oct 2014

Action 3.15: **Prioritise recruitment initiatives to kick-start the pipeline**

3.3 (ii) Leavers by grade and gender *– comment on the reasons staff leave the department*:

Year	No. Female	No. Male	Staff Type	Reason for Leaving
2014		13	Research	End of contract, New position TCD
		1	Academic: Lecturer	New position elsewhere (M)
	4		Administrative	Retirement, New position TCD, End of contract
2013	2	9	Research	End of contract
	1	2	Academic: Lecturer Assoc Professor Lecturer	Retirement (F) Retirement (M) New position elsewhere (M)
	1	1	Administrative	New position TCD, New position elsewhere
	1		Web/Technical	New position elsewhere
2012	3	15	Research	End of contract, New position TCD, elsewhere
		1	Academic: Lecturer-	Retirement (M)
	1		Administrative	New position TCD

Figure 25: Leavers 2012-2014

Our exit surveys show the most common reason listed for leaving (70%) was for career advancement. Others reasons included contract ending, career change.

There has been relatively little academic staff turnover in recent years and no information which would suggest gender discrepancies in relation to reasons for leaving.

> ***Action 3.16***: **Automate leavers' data collection**
>
> ***Action 3.17***: **Monitor leavers' data**

3.3 (iii) Proportion of men and women academic and research staff on fixed-term, open-ended, zero-hour and permanent contracts *– comment on what is being done to ensure continuity of employment and address any other issues. Where relevant, comment on any academic staff employed on a casual or adjunct basis.*

Table 11, Table 12 and Figure 21 show permanent academic staff numbers in 2013 and 2014. Table 15 and Table 16 give relevant percentages.

Permanent Academic Staff (FTE) Grade 1 Oct 2013	Professor[1] Percentage	Senior Lecturer Percentage	Lecturer[2] Percentage	Junior Lecturer[2] Percentage
Female staff	15%	17%	0%	0%
Male staff	85%	73%	100%	100%

Table 15: Percentage of permanent academic staff 1 Oct 2014

Permanent Academic Staff (FTE) Grade 1 Oct 2012 and 1 Oct 2013	Professor[1] Percentage	Senior Lecturer Percentage	Lecturer[2] Percentage	Junior Lecturer[2] Percentage
Female staff	15%	20%	0%	5%
Male staff	85%	80%	100%	95%

Table 16: Percentage of permanent academic staff 1 Oct 2012 and 1 Oct 2013

There are no zero hour TCD contracts. Occasionally an academic is employed on a casual basis to deliver a specialist course, but such academics are usually employees of another institution. Table 13 and Table 14 give numbers of contract academic staff, profiles in Figure 26.

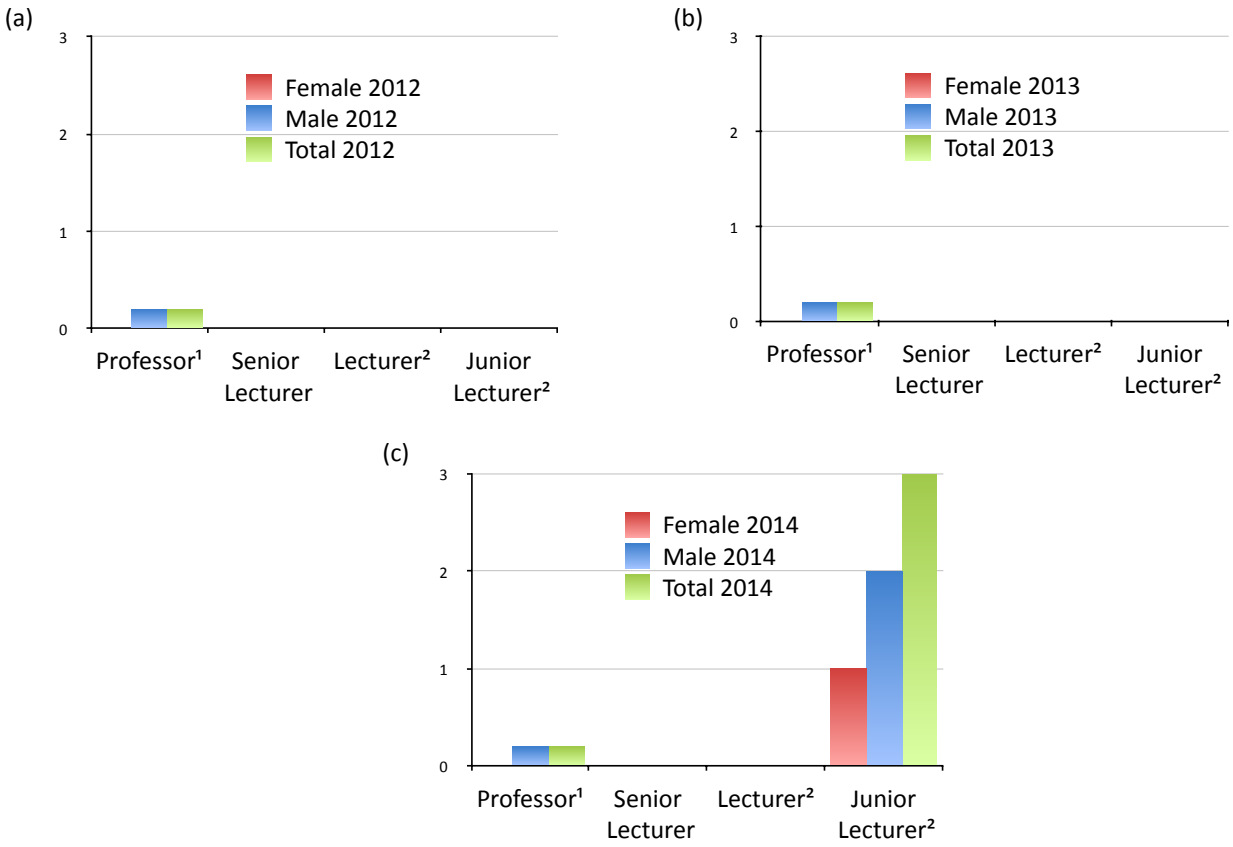


Figure 26: TCD Physics Contract Academic Staff (a) 1 Oct 2012 (b) 1 Oct 2013 and (c) 1 Oct 2014 (FTE)

TCD employed 44% (57/130) in 2014 and (57/131) in 2013 of the total number of Physics postdoctoral researchers in Ireland. In 2014 TCD employed 27% of the female postdocs in Ireland (7/26). The number/percentage of female postdoctoral researchers has dropped recently, Table 17.

The percentage of post-doctoral staff with open-ended contracts (COID) has averaged 23% 2012-2014, Table 17. The percentage of COID females (small numbers) has exceeded the male percentage every year.

2014 Contract Staff Type	Post-Doc Research	Of which COID	% COID	Other Research	Of which COID	% COID
Female	7	4	57%	1.6	0.6	38%
Male	50	8	16%	4.31	0	0%
Total	57	12	21%	5.91	0.6	10%
% Female	12	33		27	100	
2013 Contract Staff Type	Post-Doc Research	Of which COID	% COID	Other Research	Of which COID	% COID
Female	12	3	25%	1.6	0.6	38%
Male	45	9	20%	2	0	0%
Totall	57	12	21%	3.6	0.6	17%
% Female	21	25		44	100	
2012 Contract Staff Type	Post-Doc Research	Of which COID	% COID	Other Research	Of which COID	% COID
Female	9	3	33%	0.6	0.6	100%
Male	39	10	26%	0	0	N/A
Totall	48	13	27%	0.6	0.6	100%
% Female	19	23		100	100	

Table 17: Numbers and percentages of non-permanent TCD research staff. (COID: contract of idefinite duration or open-ended. Non-COID staff in this Table are on fixed contracts)

2014 Contract Staff Type	Technical	Of which COID	% COID	Administrative	Of which COID	% COID
Female	0	0	N/A	5.54	2.5	45%
Male	2	1	50%	0	0	N/A
Total	2	1	50%	5.54	2.5	45%
% Female	0	0		100	100	
2013 Contract Staff Type	Technical	Of which COID	% COID	Administrative	Of which COID	% COID
Female	1	0	0%	6	3.5	58%
Male	2	1	50%	0	0	N/A
Totall	3	1	33%	6	3.5	58%
% Female	33	0		100	100	
2012 Contract Staff Type	Technical	Of which COID	% COID	Administrative	Of which COID	% COID
Female	1	0	0%	5.05	4	79%
Male	2	1	50%	2	2	100%
Totall	3	1	33%	7.05	6	85%
% Female	33	0		72	67	

Table 18: Numbers and percentages of non-permanent Technical and Administrative staff (COID : contract of idefinite duration or open-ended. Non-COID staff in this Table are on fixed contracts)

2014 Contract Non-Academic Staff	Post-Doc Research	Other Research	Technical	Administrative
TCD Percentage Female	12%	27%	0%	100%
National Percentage Female	20%	29%	0%	100%
2014 Permanent Non-Academic Staff	Post-Doc Research	Other Research	Technical	Administrative
TCD Percentage Female	N/A	0%	17%	67%
National Percentage Female	N/A	0%	13%	100%

Table 19: Proportion of research and other staff who are female, TCD and national

TCD's 2014 percentage female postdoctoral researchers is 12% (national average 20%) Table 19. The 2013 figures were higher at 21% (TCD) and 29% (national). The differential of 8% remains. The number of female postdocs nationally has fallen from 38.5 (2013) to 26 (2014). This appears to be a national issue.

The Government's Employment Control Framework, which reduced year on year University headcount, has been detrimental to employment and continuity of employment. However staff hired on contracts which are renewed and encompass more than four years are eligible for contracts of indefinite duration, COID, which assists continuity of employment.

See Section 4.2 and Action 4.8 for postdoctoral career support.

Action 3.18: **Irish research funding agencies and female postdoctoral staff**

Impact:

- **The School has devoted significant time and energy to very detailed analysis of six years of undergraduate performance and retention across genders, years, modules and course cohorts to avoid any bias.**
- **Undergraduates in TCD Physics can be confident that their performance and retention is of vital importance to the School and that AS initiatives will address any issues that could compromise equality initiatives.**
- **The SAT initiated annual national data collections so we could benchmark our performance amongst Irish University Physics Departments.**

[Section 3: 1978 words]

4. Supporting and advancing women's careers: maximum 5000 words

For each of the following sections (4.1, 4.2, 4.3 and 4.4):

- *Provide data/statistics (numbers and percentages) for at least the past three years, with commentary on their significance. Where possible and relevant, use clearly-labelled graphical illustrations.*
- *Reflect upon the key issues in the department, what steps have been taken and what support has been given to address any gender disparity.*
- *Describe the initiatives implemented to address any issues and any impact to date.*
- *Comment upon any plans for the future, including how any gaps in the data will be addressed, and refer to specific, numbered actions that appear in the Action Plan.*
- *Provide data obtained via consultation where possible.*
- *Where the number of women in the department is small, applicants may wish to comment on specific examples.*

4.1 Key career transition points

4.1 (i) Recruitment *– comment on job application, short-listing, offer and acceptance rates by gender and grade. Comment on how the department's recruitment processes ensure that women are encouraged to apply. Additionally, please comment on how the department's processes and criteria for short-listing and selection comply with, and build upon, the university's policies for equality and diversity, and recruitment and selection.*

Recruitment of staff since 2008 has been severely disrupted and curbed by government intervention through the Employment Control Framework (ECF) that required a reduction in College staffing from 1,891 to 1,667 FTEs. The ECF also requires that non-exchequer funded staff be appointed on fixed term contracts only.

Recruitment in the School is done via College HR and complies with and builds on College policies for equality and diversity in recruitment. The College Equality policy is notified to all candidates and selection committees. Selection committees must have taken LEAD training. There have been two academic appointments, but only one lectureship advertised in Physics since end 2012. This was for a five-year lectureship in Condensed Matter Physics and is our baseline recruitment just before our involvement with Juno end 2012. This lectureship had only 10% female applicants. We should be able to do better even in the short term. Even though our own female postdoc pipeline is small, the national and international postdoc percentages exceed this in very many subject areas including Astrophysics, the subject area of two of our likely future appointments.

This position was advertised according to College Equal Opportunities Policy: "Trinity College Dublin is an equal opportunities employer and is committed to the employment policies, procedures and practices which do not discriminate on grounds such as gender, marital status, family status, age, disability, race, religious belief, sexual orientation or membership of the travelling community."

The six-person selection panel was 50% female. Both the Chair of the selection committee and the external panel member were female.

The percentage of females who applied is very low at 10%, Figure 27, and is well below the College academic staff application figure of approximately 36%. While within the female cohort the percentage of females shortlisted is 25% compared to 14% amongst the male cohort this difference is not very meaningful given the small numbers involved. In spite of the gender balance on the selection committee we propose action to encourage more female Physics applicants to consider TCD. We just need the College to sanction academic recruitment in Physics.

Figure 27: Condensed Matter Theory Lectureship recruitment

The second academic position since end 2012 was for a one-year position to start up the Walton Club, an innovative outreach initiative for schoolchildren – see 4.4 (vi). There was a single successful applicant for this position (female).

Start of recruitment	Category	Applicants		Interview shortlist		Position Offered		Position Accepted	
		Total	Female	Total	Female	Total	Female	Total	Female
2015									
Feb-15	Admin	4	4	4	4	2	2		
Jan-15	Admin	2	1	2	1	1	1	1	1
2014									
Feb-14	Admin	10	6	4	3	1	1	1	1
Feb-14	Admin	5	4	2	2	1	1	1	1
Jul-14	Admin	10	10	5	5	1	1	1	1
Jul-14	Support	1	1	1	1	1	1	0	0
Jul-14	Academic	1	1	1	1	1	1	1	1
Oct-14	Support	30	18	5	3	1	0	1	0
2013									
Jun-13	Tech	5	2	5	2	1	0	1	0
Oct-13	Research	2	0	2	0	2	0	2	0
2012									
Jun-12	Academic	4	0	3	0	1	0	1	0
Mar-12	Academic	40	4	5	1	1	0	1	0

Table 20: Non-academic Recruitment

Non-academic recruitment has also been limited, Table 20, predominantly administrative with a predominantly female applicant pool.

The College has recruitment and related policies, to ensure that the recruitment process for academic, technical and administrative staff is in compliance with equality and diversity policy. The College Equality Policy, which is notified to all candidates and selection committees, makes specific provisions in relation to advertising, interviews, and general recruitment and selection principles. The Recruitment Policy ensures equity and fairness, through a number of specific provisions in relation to documentation of job and person specifications, advertising, selection criteria, interview scheduling and record keeping, and selection committees, including gender balance, and the appointment of external assessors. To ensure compliance with College Equality Policy and state provisions, all members of selection committees are required to undertake the LEAD Programme. The HR function ensures compliance with policy through their operating processes and active involvement in the recruitment process. Recruitment competition files retain the requisite information to ensure that compliance is documented. However, the recruitment of research staff is devolved to PIs without central HR support. This is a significant issue for us, Action 4.1.

Our strategy for our next academic appointment will build on College policy and procedure:

A. The SATC to be circulated on the draft advertisement for our new academic appointments. The College Equality officer is on our WiP/AS committee and has advised on the text of our advertisement in the context of our AS/Juno goals.

B. The College wording for Physics job advertisements will be modified as follows and will display the Juno logo prominently.

"The Trinity College Dublin School of Physics has been awarded Institute of Physics Juno Practitioner status and is engaged with Athena SWAN for taking action to address gender inequities across its student and staff body. It is committed to promoting better working practices for men and women https://www.tcd.ie/Physics/womeninphysics/projectjuno/. The School welcomes applications from all qualified applicants, and applications are particularly encouraged from traditionally under-represented groups in Physics. "

C. Staff are requested to be proactive using their networks of contacts to encourage the best possible applicant pool with a view to encouraging a strong field of women as well as men to apply. Staff in the relevant field, in particular, can play an important role for lectureships in terms of soliciting a strong applicant pool amongst both genders from their contact networks.

Action 4.1: **Transparent recruitment procedures for research staff**

Action 4.2: **Focus on the talent pool**

Action 4.3: **Shortlist target**

4.1 (ii) Induction *– describe the support provided to new staff at all levels.*

Orientation handbooks are available to both students and staff. New academic staff are assigned a mentor who meets with new staff on a regular basis. One of the first things a mentor for academic staff or Head of area for other staff usually does is introduce staff to our sociable coffee. There is also a College mentor programme available to staff. HR run a Colege induction day for new staff including an introduction to College policies on Dignity at Work and Health and Safety policies. The Provost welcomes staff to this event.

Social gatherings/First Thursday Coffee – and bring a female researcher

Until 2013 the School has had very limited space for coffee/social gatherings. Academic, technical and administrative staff usually had coffee at different times, timesharing a small room. The School has put significant financial resources in 2013 into the restoration of the Fitzgerald library so that it is now a large, inviting, bright and open space. Since this restoration all academic, administrative and technical staff now have a single coffee time and space. This has been a very welcome initiative. Beforehand a female academic might often be the only female at coffee.

Research staff have always been welcome at any time. However they have not routinely joined the rest of the staff in any significant numbers. To promote their inclusion in the School we have initiated a First Thursday coffee morning (the first Thursday of every month) that research staff and their supervisors are particularly encouraged to attend. As many of our researchers work in the interdisciplinary CRANN/AMBER Research Centre they may work alongside female researchers from other Schools. Our current staff profile means Physics gatherings tend to be very male dominated events. Our First Thursday Coffee asks Physics postdoctoral staff to bring a female researcher with them so that our own Physics female researchers can network with a broader pool of female researchers and staff.

This event has been very successful in getting a critical number of women together in one space once a month. Female researchers have commented that it helps reduce the potential isolation of being in the minority in any research group. This event is also a useful part of the induction process for any new staff members.

4.1 (iii) Personal Development Review *– describe any schemes (formal or informal) which are currently in place for staff at all levels, including post-doctoral researchers, to discuss, support and encourage their career progression. Where possible, comment on the consideration of promotion and work–life balance during the review. If available, provide details about the frequency and take-up of these schemes. Comment about any training provided for staff carrying out reviews and staff feedback about the review process.*

The College operates a formal Personal Development system known as PMDS (Performance and Development Scheme) that provides for an evaluation structured discussion of individual employees' work objectives, performance, and development needs. The scheme is not linked to promotion or pay progression. The PMDS process forms part of dicussions with the various unions in College and is currently under review to improve its effectiveness.

4.1 (iv) Promotion *– provide data on staff applying for promotion, and comment on applications and success rates by gender and grade. Comment on any evidence of a gender pay gap in promotions at any grade.*
Provide details on the promotions process, including how candidates are identified, and how the process and criteria are communicated to staff.

Comment on the criteria for promotion, including detail about how career breaks are taken into account. Comment also on if and how the full range of work-related activities (including administrative, pastoral and outreach work) are taken into consideration.

Provide details of any training or mentoring offered to become eligible for or improve success at promotion, both in advance of an application and with regards to staff who have been unsuccessful. Where possible, comment on the perceptions staff hold of the promotions process.

The Government prohibited promotion for several years, so we have had very limited promotions in the School in recent years. Promotion decisions are at College level only. The ECF has imposed

restrictions on the grade distribution between senior and junior grades that impacts on all promotions, regardless of the funding source (exchequer/non-exchequer). For academic grades the distribution has to be maintained at 21.7% : 78.3% junior to senior grades. For some years there was no promotion of some or all staff. There is limited promotion now, however strict promotion quotas have been set by the Board of the College for financial reasons. This has resulted in a backlog of potential applicants, an intensely competitive process resulting in inevitable dissatisfaction. Promotions outcomes are communicated to staff via the Faculty Dean.

In the last three years only one (male) Physics academic has been promoted, Table 21. With such low numbers applying and such low promotions quotas it is difficult to make any meaningful comment on School promotions and gender at this stage.

Year	Grade applied for	Promotion Applications		% Successful Promotions	
		Male	Female	Male	Female
2015	Personal Chair	1	0	In process	N/A
	Associate Professor	2	1	In process	In process
	Senior Lecturer	2	0	In process	N/A
	CTO 1 Above merit bar	1	0	In process	N/A
	Senior Executive Officer	0	3	N/A	In process
	Senior Experimental Officer	1	0	In process	N/A
2014	Personal Chair	3	0	0%	N/A
	Associate Professor	2	1	0%	0%
	Senior Lecturer	3	0	33%	0%
	No promotions round for non-academic staff	N/A	N/A	N/A	N/A
2013	N/A No promotion round	N/A	N/A	N/A	N/A

Table 21: Promotion success rate in TCD Physics

Pay scales are the same in Departments across College. Pay scales for a particular point of an academic grade vary according to the date of recruitment. Staff recruited 1995-2011 have the highest payscales, staff hired before 1995 pay lower national insurance and have correspondingly reduced payscales. Additional pay cuts applied to new entrants after 2011. While female salaries appear generally lower than males, within these variations it is difficult to draw any definitive conclusion in relation to a gender pay gap from current data, Table 22. Investigating this further is a College action.

	2012		2013		2014	
	Female	Male	Female	Male	Female	Male
Lecturer Below Merit Bar	97.0%	104.0%	98.0%	102.0%	95.0%	105.0%
Lecturer Above Merit Bar	100.0%	100.0%	99.0%	101.0%	99.0%	101.0%
Senior Lecturer	99.0%	100.0%	96.0%	102.0%	96.0%	102.0%
Associate Professor	100.0%	100.0%	102.0%	99.0%	101.0%	99.0%
Professor	101.0%	100.0%	97.0%	101.0%	95.0%	101.0%
Other Grades	124.0%	80.0%	136.0%	71.0%	106.0%	90.0%
All Academic Grades Average	90.0%	107.0%	91.0%	106.0%	90.0%	107.0%

Table 22: Female and Male academic pay as a percentage of average pay for each grade. (A multiplier reflects full time equivalence: Source College HR)

The SATC will continue to liaise with INTEGER/AS College committee and with College Promotions committee to secure a policy statement on how career breaks including maternity/sick leave are considered in promotion, Action 4.4. There has already been a positive outcome in terms of a requirement as of 2015 for promotions panel staff to have taken LEAD and unconscious bias training. The table below shows how the full-range of work activities are taken into consideration with different weightings for different promotions.

Grade	Research and Scholarship	Teaching	Service to College	Service to Discipline/Community
Confirmation in appointment	45%	45%	5%	5%
Merit bar	40%	40%	10%	10%
Senior Lecturer	33%	33%	17%	17%
Associate Professor	45%	25%	15%	15%
Professor and Personal Chair	50%	25%	10%	15%

Table 23: Weightings for Promotions

Mentoring for success in promotion: Physics promotions ladder

School Heads do not normally sit on promotions committees. School Heads normally write references for academic staff, for example, which would preclude them from sitting on promotions panels.

The HoS requested that willing staff assist in hosting a promotions ladder network where recently promoted Physics academic staff identified themselves as willing to offer to assist candidates seeking promotion climb the promotions ladder. This has happened for the last two academic promotions rounds in 2014 and 2015.

The WiP/AS Chair designed an all-staff survey to gauge the mood of the Department. Responses are combined across all staff groups to maintain anonymity. One of the questions asked was in relation to promotion.

Q: I have been encouraged to apply for promotion where relevant by senior colleagues or peers in TCD Physics

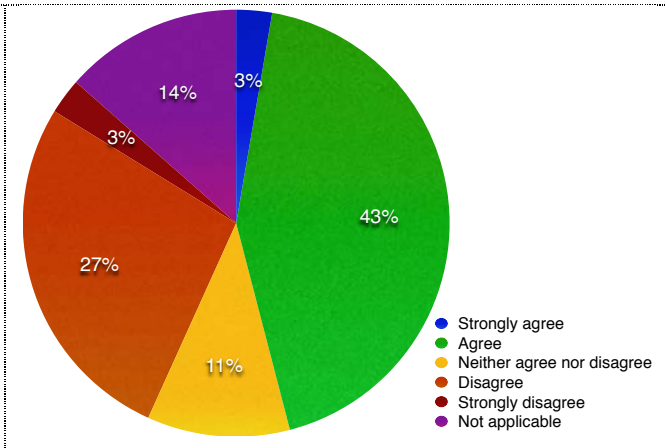


Figure 28: Promotions question

There were gender differences in the responses: Approximately 15% females agreed. Approximately 50% males agreed, see Action 4.5.

Action 4.4: **Leave and Promotion**
Action 4.5*:* **Extend the promotions ladder**
Action 4.6: **Encourage all staff to apply for promotion**

4.1 (v) Selection committees *- Provide details of how selection committees for recruitment, promotion and retention are formed. Comment on how gender balance is taken into consideration. Comment on how the issue of 'committee overload' is addressed where there are small numbers of women.*

The Dean nominates a Selection Committee. Selection Committees must represent both genders. The Selection Committee should be comprised of the most suitable and qualified people to assess applicants in the discipline and the role being fulfilled. A representative from Human Resources assists Selection Committees in carrying out their function. Where there are small numbers of women, the females on the Committee do not necessarily have to come from the recruiting School and may come from another University.

4.2 Career development

4.2 (i) Support given to students (at any level) for academic career progression *– comment and reflect on support given to students at any level to enable them to make informed decisions about their career (including the transition to a sustainable academic career).*

Our third year undergraduates take a communications skills course. While this includes the effective communication of scientific results it also focuses on the writing of CVs and job-seeking skillsets. The TCD Careers Advisor Servisory service supports undergraduate and postgraduate students to make informed decisions about careers. Physics Open Days are aimed separately at undergraduates and postgraduates and assist students in making informed choices. A strong gender mix is always considered amongst hosts of Physics Open Days, so that females can also identify with Physics as a career.

The final year project mentoring is a major element of our degrees and is a great opportunity for undergraduates to network with researchers and academic staff with a significant block of time spent in a research group. The Summer Undergraduate Research Experience (SURE) programme is another route for our undergraduates to obtain research experience in Physics and opens up their view of a possible academic career.

TCD has a noteworthy College pastoral tutor system. Each undergraduate is assigned a College Tutor on entering TCD. Tutors are a source of support at any time during a student's time in College. They provide confidential help and advice on personal as well as academic issues and are a valuable resource for students in relation to many issues including careers.

Action 4.7: **SURE and gender balance**

The School promotes events which encourage our students to consider careers in Physics including acacemic careers. As part of our AS initiatives the School has supported students to attend a Women in Physics conference in Belfast, 2014 and the Conference for Undergraduate Women in

Physics (CUWiP) in Oxford, 2015 Figure 29, Figure 30. Students have also been supported to attend a Royal Irish Academy Masterclass with Dame Jocelyn Bell Burnell, 2014, Figure 31.

Figure 29: Women in Physics Day, Belfast 2014 TCD undergraduate and postgraduate students with TCD Pro-Chancellor Dame Jocelyn Bell Burnell (courtesy Katarzyna Siewierska)

Figure 30: TCD undergraduates with Dr Bortello, Oxford Conference for Undergraduate Women in Physics, CUWiP 2015 (courtesy Katarzyna Siewierska)

Figure 31: TCD Physics Postgraduate students with Dame Jocelyn Bell Burnell at her RIA Masterclass, 2014 (courtesy Donna Rodgers-Lee)

Networking Events

Students who enter TCD Science choose their degree topic at the end of second year. Many of our students will have taken Physics, Chemistry and Mathematics until the end of second year when they can choose Physics or Physics and Astrophysics. While students entering College taking Theoretical Physics or Nanoscience (NPCAM) have already formed a Physics identity, we try to strengthen this identity within the cohort who enter as Science students. With relatively few females in any year, students in third and fourth year Physics and Physics and Astrophysics have been invited to a blender event so that they can meet and share experiences with peers a year up and down.

To celebrate the role of Women in Physics and the School's support of Athena SWAN and Juno

Figure 32: Student networking event (courtesy Alice Gillen)

initiatives, and Undergraduate Physics SAT member, the SATC and Lauren Byrne organised a Women in Physics student networking event. Students networked across all Physics courses and all years. One of the three students who attended the CUWiP conference in Oxford spoke about the meeting. The networking extends beyond the walls of TCD - former female student, a student at Diamond Light Source near Oxford, welcomed this trio last week in Oxford. Aoife Ivory, also a former student, attended to show the support of our female Physics alumni for our current undergraduate women in Physics.

4.2 (ii) Support given to postdoctoral researchers for academic career progression *– comment and reflect on support given to postdoctoral researchers to assist in their career progression.*

In 2013, the School of Physics began a Postdoc Forum to better facilitate the career development of our postdocs. This forum is run by the two PRLs on the SAT, Evie Doherty and Shane Bergin.

Over the past two years, the forum has offered lectures and workshops on practical issues such as CV writing, writing successful grant proposals, and teaching. These have been delivered by external experts including Dr Liz Elvidge from Imperial College London's Postdoc Development Centre. Feedback from postdocs who attended has been very positive.

Postdocs are suppported by INTEGER initiatives in College organising seminars and workshops. Physics supported the female PRL to attend an IOP BBC course on science communication, 2014. Both PRLs represented the SAT at an INTEGER event in Grenoble, 2015. Support to post doctoral researchers comes also through their Principal Investigator, as well as through Trinity Research & Innovation (TR&I) who support more experienced post doctoral researchers in identifying funding and job opportunities.
SATC organised a "Focus on Women in Light" UNESCO International Year of Light event with a Masterclass aimed primarily at female early career researchers in TCD and nationally: http://www.light2015.org/Home/Event-Programme/2015/Lectures/Ireland-Focus-on-Women-in-Light.html.

The PRL, Shane Bergin, is actively supporting the establishment of a Postdoc Centre in TCD which could be modeled along the lines of centres in QUB or Imperial College.

The Postdoc Forum has worked with Shane Bergin to collect career data for current and former postdocs. In this work, the forum contrasts the career ambitions of postdocs at TCD physics with the career realities of where their immediate predecessors have gone. Support at a local level for studying and solving associated issues was given by the SAT. This survey was primarily completed to give our postdocs real data on their career prospects as well as to inform wider College policy on issues raised. Data gathered in this study show a distinct difference between the desired, anticipated, and real 'next career step' for postdoctoral scientists. Gender, time spent as a postdoc, and degree of career planning were identified as factors that contribute to differences between these desired, anticipated and real outcomes.

45 Physics postdocs responded to the careers survey. Respondents were asked to rank their *desired* next career move from a given list. They were then asked to rank their *anticipated* next career move from the same list. Finally, academic staff members (PIs) were asked to assign the first career destination of their former postdocs (using the same list). The gender disaggregated data in Figure 35 shows the majority of male and female postdocs desire to stay in academia. This data is in broad agreement with an identical (and much larger) survey of 2,000 postdocs at a leading UK university.

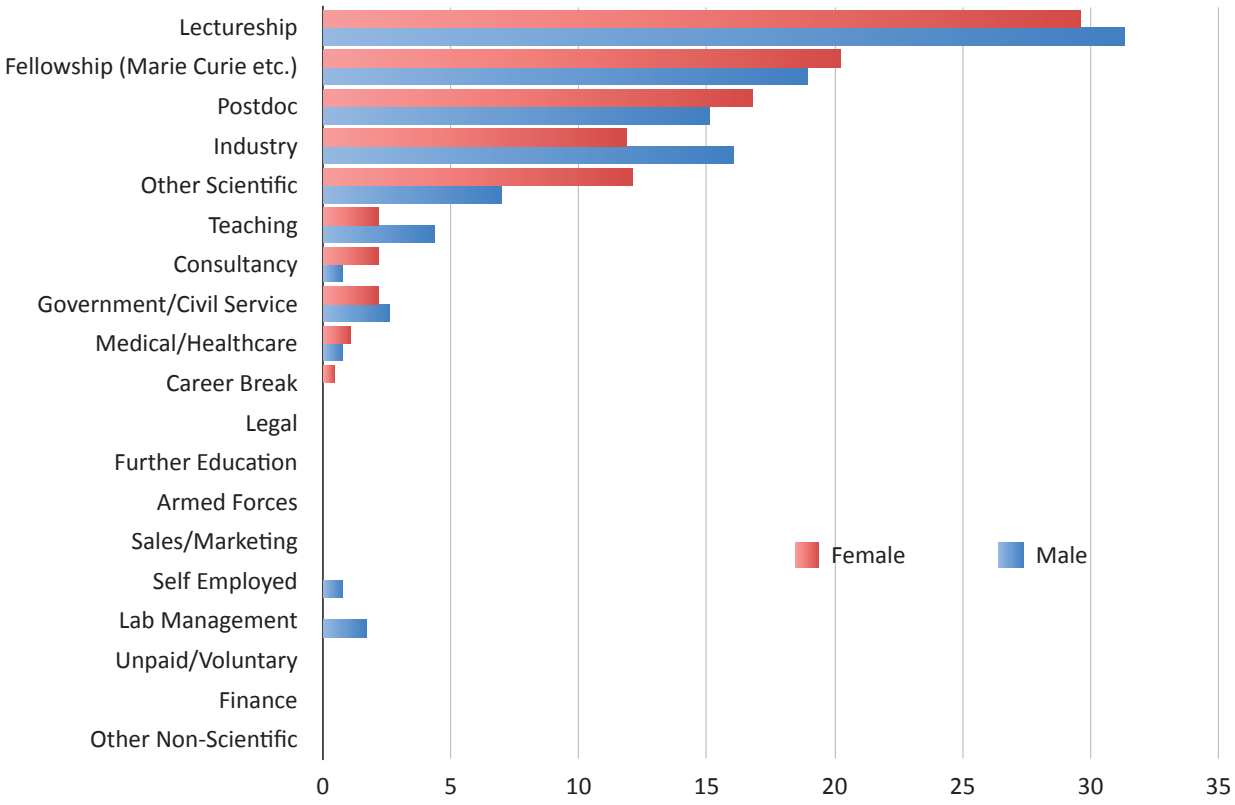


Figure 33: *Desired* next career move postdoctoral researchers by gender

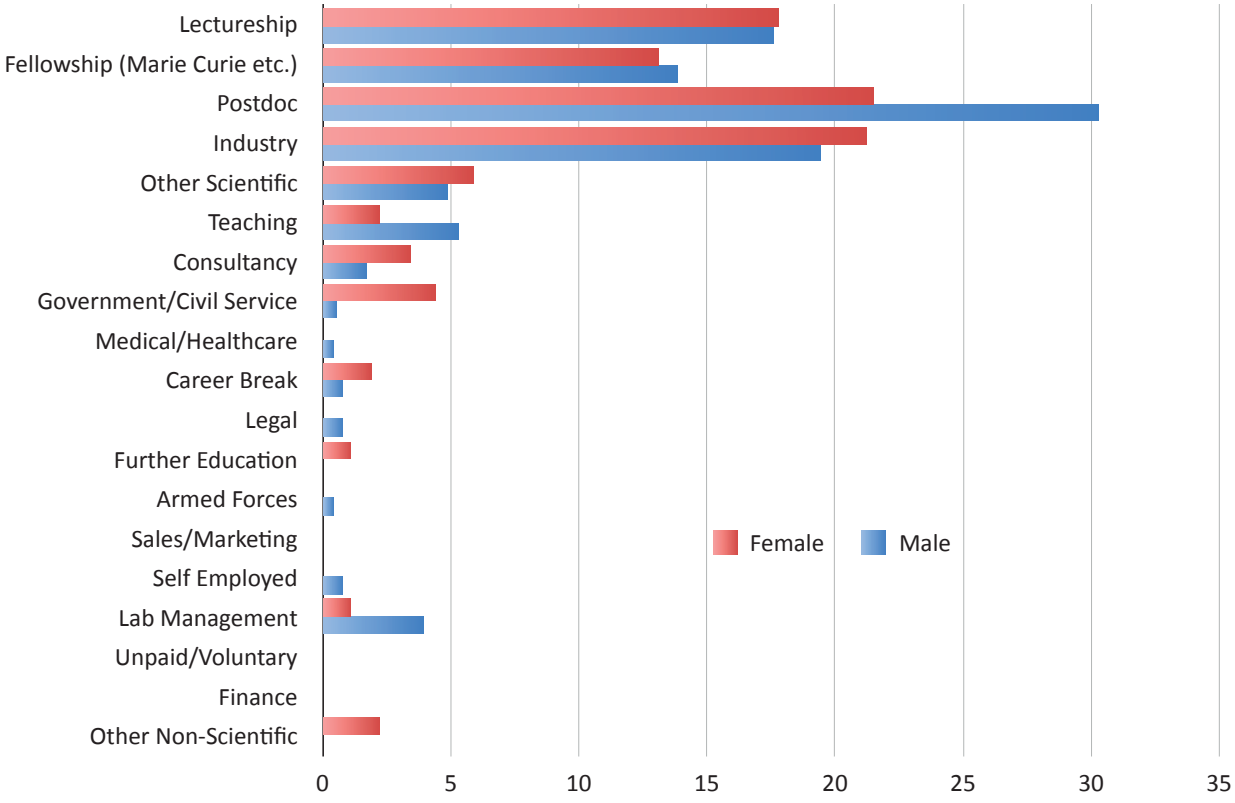


Figure 34: *Anticipated* next career move postdoctoral researchers by gender

The methodology and findings inform our institutional response to postdoctoral issues. By involving postdocs in survey design, interpretation, and institutional efforts to improve best practices, this work has engaged the local research community while providing a framework for other institutions to follow suit.

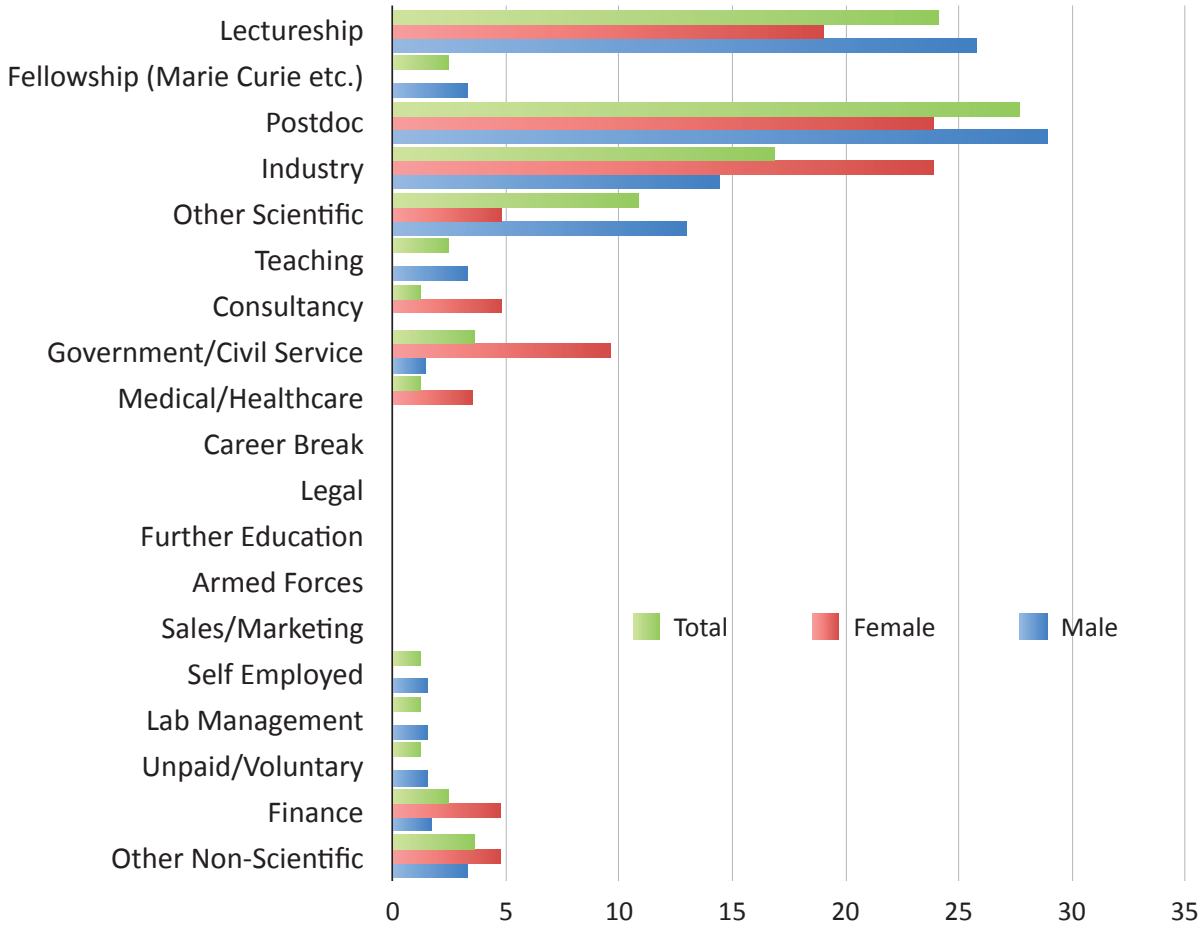


Figure 35: *Actual* next career move for recent former postdoctoral researchers by gender

***Action 4.8*: Postdoc Centre**

4.2 (iii) Training *– describe the training available to staff at all levels in the department, including any equality and diversity training, leadership training, or other training opportunities related to career progression. Provide details of uptake and how existing staff are kept up-to-date with training.*

LEAD training, Programme for Equality and Diversity, tailored to the Higher Education sector in Ireland is available to all staff and has been taken up by all members of the Executive and all staff members of the SAT. However the online training is currently not available to students. Unconscious bias training has been available to a very limited extent in College beginning with the College Executive group and extended to promotions panels in Spring 2015. The WiP/AS Chair has attended multiple unconscious bias workshops via Juno in London 2013, IOP Dublin 2014 and promotions panel training 2015.

Aurora training is now available to our female staff up to Senior Lecturer level. 100% of our academic females in this category will have taken this training in 2015.

Health and safety training is available to all staff and students.

Action 4.9: **Extend LEAD, unconscious bias training to postgraduates and other staff**

4.3 Flexible working and managing career breaks

4.3 (i) Cover and support for maternity and adoption leave *– explain what the department does (beyond the university maternity policy package) to support staff before they go on maternity leave. Discuss arrangements for covering work during absence, arrangements to enable staff to keep in touch during absence, and how staff are supported on their return. Comment on any differences in maternity leave provision for staff on fixed-term contracts.*

The State provides for Maternity leave of 26 weeks (paid equivalent to unemployment payment) and an addition 16 weeks (unpaid) as a statutory entitlement, provided the mother fulfils the social insurance contribution eligibility threshold. College has a maternity leave scheme, open to all staff categories, irrespective of contract type and without any eligibility threshold, which provides continuation of full pay for the duration of paid maternity leave.

Owing to the financial and employment control developments since 2009, replacement of staff on maternity leave has become more difficult. This was a major gender issue. The SATC raised this issue with the Provost in 2013 and, in 2014, the HR Committee expressed concern at the gender impact of this policy. As a result of this the HR Director proposed an approach to funding a level of maternity leave replacements from central College funds, and succeeded in re-establishing them.

Staff on leave are encouraged to keep in touch via staff coffee or First Thursday events or simply by dropping in.

A pilot scheme was negotiated in the FEMS Faculty, under the INTEGER Project, to facilitate staff returning from maternity/adoptive, parental, carer and sick leaves (of similar duration c. 6 months). The Faculty cover the cost of teaching buy-out for one Semester, to enable staff to get their research career back on track. This scheme commences for academic staff returners from January 2015.

Action 4.10: **Returner's leave: monitor and support**

4.3 (ii) Maternity return rate *– provide data and comment on the maternity return rate in the department and, where possible, the proportion of staff remaining in post 6 and 12 months after return from maternity leave.*

Year	No. taking maternity leave	No. returning from maternity leave	No. In post 6 months after leave	No. In post 12 months after leave	Staff Category
2014/2015	1.54	N/A	N/A	N/A	Admin
2013/2014	1	1	1	N/A	Admin
2012/2013	1	1	1	1	Technical
2012/2013	1	1	1	1	Admin
2011/2012	2	2	2	2	Research

Table 24: Maternity leaves and return rate

The School has seen 100% return rate from maternity leave.

4.3 (iii) Paternity, adoption and parental leave uptake *– comment on the uptake of paternity leave, adoption leave and parental leave by gender and grade. Discuss whether the rates of uptake for this leave have changed. Where possible, provide details on the department's paternity package and arrangements.*

Mothers have the same right to adoptive leave (24 weeks) as other mothers. Fathers have no statutory entitlement to paternity leave in Ireland. Both parents have a right to take unpaid parental leave of up to 18 weeks per child (up to the age of 8 years). Trinity College allows fathers to take 3 days paternity leave, the normal entitlement across the public sector.

The government will publish a Family Leaves Bill in 2015 that will extend the rights of men to take further paternity leave. Details of proposed duration, and whether the leave will be paid, are not yet available. Any extension to paternity leave, if and when it emerges, will be promoted to staff and its take-up will be monitored.

Year	Leave Type	Leave Applications		Leave granted		Staff Category
		Total	Female	Total	Female	A:Admin, B:Technical, C:Academic, D:Research
2014/15	Paternity	1	N/A	1	N/A	1B
	Parental	1	1	1	1	1A
	Adoption	0	0	0	0	N/A
2013/14	Paternity	3	N/A	3	N/A	3B
	Parental	1	1	1	1	1A
	Adoption	0	0	0	0	N/A
2012/13	Paternity	1	N/A	1	N/A	1B
	Parental	0	0	0	0	N/A
	Adoption	0	0	0	0	N/A

Table 25: Uptake of paternity, parental and adoptive leave

100% of requests for leave have been granted, Table 25.

4.3 (iv) Flexible working *– comment on whether there is a formal or informal system for flexible working in place. Provide data on application and success rates by gender and grade, commenting on any disparities. Give details of the support and training provided for managers in promoting and managing flexible working arrangements, and of how the department raises awareness of the options available.*

The College and School operates both formal and informal systems of flexible working. The academic contract of employment addresses working hours obligations as follows, providing the context for agreement between academic staff and the HoS:

> *"It is understood that your place of work will principally be the university at campus but that it may be varied from time to time to include other locations consistent with the requirements of your work. Taking account of the provisions of the Organisation of Working Time Act 1997, you will work such hours as are reasonably necessary for the proper performance of your duties and responsibilities".*

For administrative and support staff, there is a flexitime scheme which provides for core working hours with flexible attendance patterns outside of those core hours. The College also operates a Shorter Working Year scheme and reduced working hours arrangements.

The HoS has written to staff detailing the School's explicit support for flexible working and this is listed on the School website. The staff view of work flexibility is extremely positive, see Figure 39.

4.4 Organisation and culture

4.4 (i) Representation of men and women on committees *– provide a breakdown by committee and explain any differences in gender representation. Explain how potential members are identified and comment on any consideration given to gender equality in the selection of representatives. Identify the most influential committees in the department and comment on how women are encouraged to participate in these and other influential external committees. Comment on how the issue of 'committee overload' is addressed where there are small numbers of women.*

Principal School Committees	No. Females	No. Males
School Executive	3	7
Academic Staff	4	28
Undergraduate Teaching and Learning	1	12
WiP/AS SAT	4	12

Table 26: Membership of principal School committees by gender

Membership of the SAT is based on personnel who can deliver actions in target areas as well as providing a gender mix in a very male dominated School. It involves the HoS, two of the three permanent academic staff, both PDLs, student representatives, male and female and other staff with responsibilities in outreach, teaching delivery, technical support and administration. All females on the School Executive, the most influential committee, are on the SAT. Four of the males on the Executive are on the SAT. This makes the SAT a very influential committee also. All female and all male academics are on the academic staff committee. From time to time, some of the members of School committees, male and female, are heavily loaded with committees. There is a recognition, however, that a gender balance on committees is important, and a general wilingness to rebalance the committee load if that becomes an issue.

4.4 (ii) Workload model *– describe the systems in place to ensure that workload allocation—including pastoral, administrative and outreach responsibilities—is fair, and whether this is taken into account at personal development review and in promotion criteria. Comment on workload distribution and any differences with regard to gender. Comment on the rotation of responsibilities; for example, those with a particularly heavy workload (such as leading on preparing an Athena SWAN submission) and those that are particularly valuable for an individual's career progression. State whether staff are aware of the details of the workload model and its outcomes, whether they consider it to be transparent and fair, and whether there are any gender differences in this regard.*

The School of Physics has a workload model in line with College policy and staff are fully aware of this model. The model permits Schools to allow workload to be compensated between activities. The core academic functions of teaching and learning, research, and contribution/scholarly activity contribute to this model as well as activities such as outreach, management roles and Athena SWAN activity. There are no obvious gender disparities in workload allocation. Responsibilities are

rotated over time in an informal way. Promotion criteria take a range of responsibilities into account via "Service to College" and "Service to community" headings.
The staff perception of workload allocation is shown in Figure 36 where only 27% of staff disagreed with the statement: "The way in which TCD School of Physics workloads are allocated is fair." There were no particular gender differences here. Dissatisfaction with workloads is inevitable given everyone's increased workload with ECF staffing curtailment.

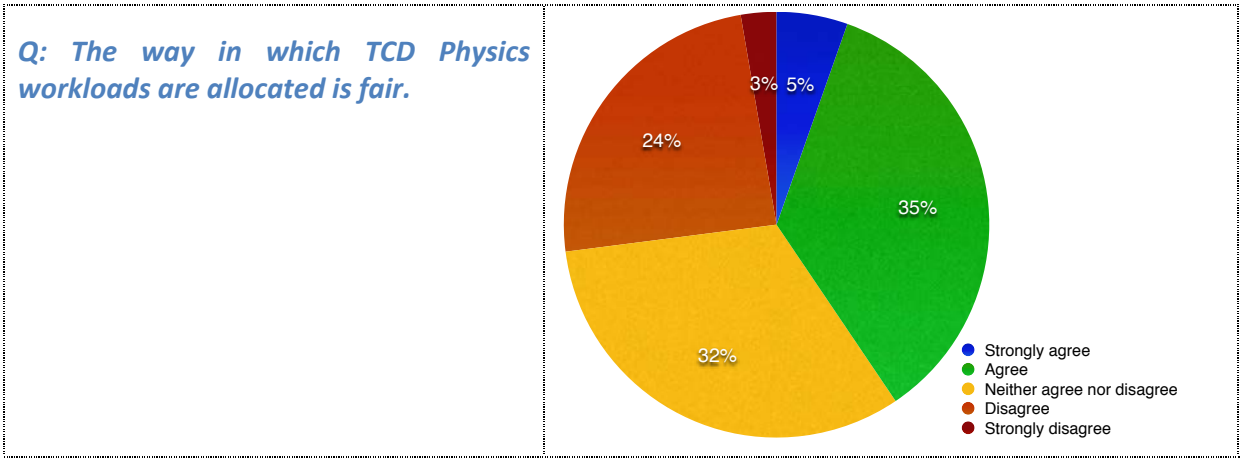


Figure 36: Staff response to workload allocation question

4.4 (iii) Timing of departmental meetings and social gatherings *– provide evidence of consideration for those with caring responsibilities and part-time staff; for example, what the department considers to be core hours and the systems in place to prevent particular staff being excluded from specific activities.*

The School now operates in a framework where all School meetings such as School Executive, teaching meetings, School meetings, Academic staff meetings are held in the core hours of 10am-4pm. There are limited entertainment budgets due to financial constraints and government regulations on such expenditure. The main social gatherings are fully inclusive and involve coffee events like First Thursday or seminar coffee events, again all within these core hours. AS SAT and AS focus group meetings are within these core hours.

4.4 (iv) Visibility of women as role models *– comment on the gender balance of speakers and chairpersons in seminars, workshops and other relevant activities. Comment on publicity materials, including the department's website and images used.*

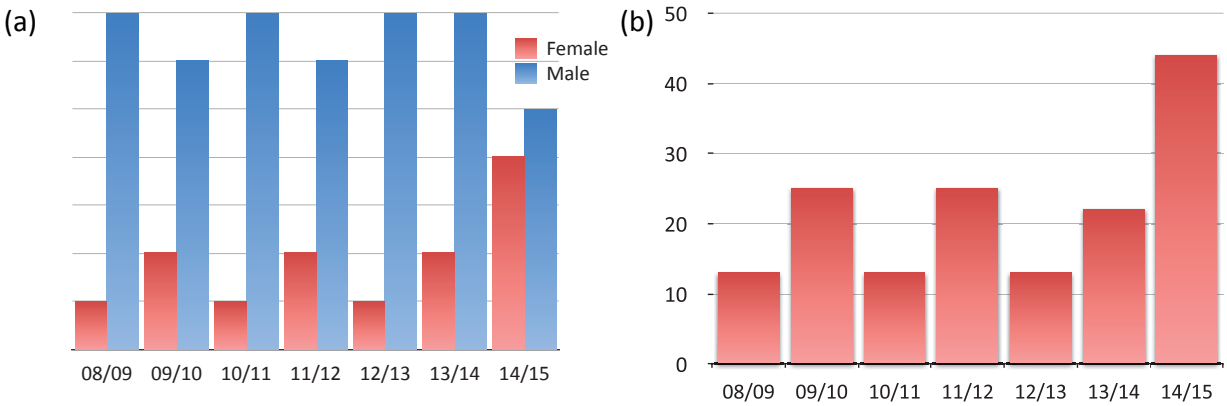


Figure 37 School Seminar Speakers (a) Numbers of Male and Female and (b) Percentage Female School Seminar Speakers

Our Juno Practitioner application, Nov 2013, indicated that we would target 40% female speakers at School seminars. This was implemented at the very first opportunity beginning January 2014. That semester saw 50% female speakers (2 female, two male). The first full academic year since then 2014/2015 saw 44% female speakers.

School seminar Chair is an academic responsibility, usually assigned for a few years, and rotates between staff, male and female. Chairs of postgraduate students giving seminars rotate between all staff. Staff involved with running conferences in TCD Physics are asked to target 25% female speakers at invited and plenary levels. We are conscious that this is easier in some disciplines that others. The expectation is that staff will invite a percentage of female invited and plenary speakers which is broadly in line with female percentages in that discipline with a target of 25% where appropriate.

Action 4.11: **TCD Physics conferences female plenary and invited speaker target**

There is strong female academic staff participation in first year. One female academic teaches a first year course. Another coordinates the undergraduate laboratories and coordinates and teaches the Foundation Physics module. We have implemented a policy in frst year where there are at least two female students assigned to each small group tutorial group.

4.4 (v) Culture *– demonstrate how the department is female-friendly and inclusive. 'Culture' refers to the language, behaviours and other informal interactions that* characterise the atmosphere of the department, and includes all staff and students.

The SATC ran focus groups for female staff and students and designed staff surveys for existing and exiting staff to capture the culture. Data was also gathered data from a survey of female students specifically in relation to understanding why some females exit Physics. The focus groups amongst staff and students pointed to a culture where flexible working is fully embedded and where female students responded very positively to the organisation in the Department and the strong interaction with staff.

Female student comments include the following:

"There's a great community in Physics, a lot more than any other (School)"
"best variety of subjects/topics"
"good lecturers, especially enjoy Quantum Physics"
"Some of the professors are really inspiring"
"I like the vibe in the Physics Department"
"well-run School"
"sense of small community"

Staff survey comments on aspects that were appreciated about the School:

"It is a very international environment."
"Interaction with Industry is outstanding here because that is the thing everyone wanted at the end of the day."
"being on a college campus and in the city center"
"Friendly environment"

Staff surveys revealed the following:

Q: TCD Physics is Inclusive and welcoming

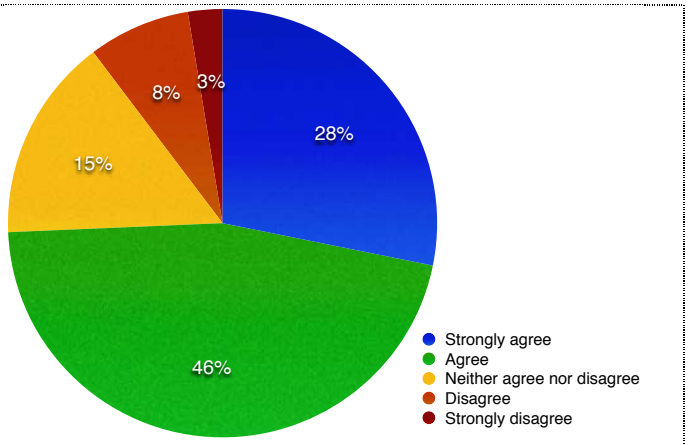


Figure 38: Inclusivity in TCD Physics

0% females disagreed and only 11% overall disagreed to some extent.

Q: Flexible working practices including flexible and part-time working are supported in TCD Physics

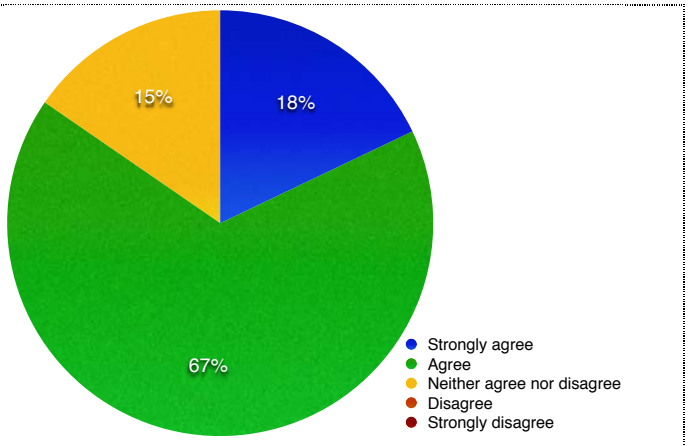


Figure 39: Flexibility in working in TCD Physics

0% males and females disagreed with the flexible working statement and 85% agreed overall while 15% had no opinion.

Q: Contributions to activities other than research/teaching are valued by colleagues in TCD Physics

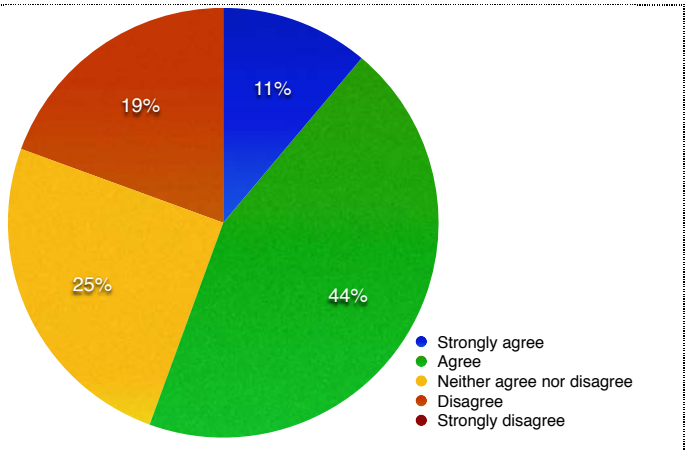


Figure 40: Other activities valued by TCD Physics

0% females disagreed (20% males disagreed to some extent) that activities other than research/teaching are valued.

These key survey outcomes point to a very female-friendly environment.

When staff were asked: “Would you recommend TCD Physics to a friend?”, 86% agreed that they would.

Action 4.12: **Qualitative data**

4.4 (vi) Outreach activities *– state the proportion of men and women involved in outreach and engagement activities. Comment on the uptake of these activities by gender, where possible.*

Staff support our OC’s outreach initiatives by volunteering anually based on their availability. Most male academic staff contribute and all female academic staff do so regularly.

In 2005/2006 TCD Physics began one of the first week-long Physics in-reach initiatives where 15/16 year olds were invited to apply for the Transition Year Physics Experience (TYPE) programme. From the outset we were heavily oversubscribed and implemented a policy of 50% females on these enormously successful programmes. Some of these females have later obtained the high points required to join us as undergraduates.

More recently the School has embarked on another new initiative. Trinity welcomed 60 post-primary students in Physics to begin the inaugural Trinity Walton Club programme, named after the Nobel Prize winner, Ernest Walton, a former professor in TCD. Each Saturday afternoon the Physics buildings come alive with 14 year-olds, eager to learn more about STEM. Again a 50% female philosophy applies amongst students. Gender balance is also a priority amongst Walton Club educators. The expanding Walton Club promises to show dividends in our female recruitment in due course.

Figure 41: Walton Club educators (left), Astronaut Chris Hadfield meeting Walton Club students (courtesy Dr. Arlene O’Neill)

In our promotion of TCD Physics we initiated undergraduate Women in Physics Scholarships in 2007 and have supported these scholarships every year since then.

Action 4.13: **Monitor staff involvement in outreach**
Action 4.14: **Continue Women in Physics Scholarships**

4.4 (vii) HR policies *– describe how consistently HR policies about equality, dignity at work, bullying, harassment, grievance and disciplinary processes are applied and followed in practice. Describe how the application of HR policies in the department is evaluated.*

There is a link to Colege policies on the School website. College policies on equality, dignity at work etc are evaluated at the level of the College committee overseeing the policy and its

implementation. Application of HR policies is currently evaluated in the School via School staff surveys and via staff exit surveys.

On 1 Oct of each year we propose a "Policy Day". The College Equality officer, EO, will remind all Physics staff and students of the HoS request that staff read (or re-read) key policies so that staff are kept up to date with policy changes and new policies such as the new Gender identity and Gender Expression Policy.

Action 4.15: **Policy Day**

Action 4.16: **Lobby research funders**

Action 4.17: **Lobby in College wrt research metrics**

Action 4.18: **Networking**

Action 4.19: **Training beyond SAT**

Impact:

- **A Postdoc Forum was initiated and the PRLs are active promoting researcher interests via seminars and workshops.**
- **TCD Physics postdoc career aspirations and reality have been investigated.**
- **First Thursday coffee is embedded to encourage networking amongst female staff, particularly research staff.**
- **A Physics promotions ladder has been initiated.**
- **SATC contributed to the new Faculty Returners' leave policy offering teaching reduction following periods of maternity/sick leave.**
- **The School offers Physics Scholarships for female undergraduates.**
- **The School's outreach TYPE programme for 15/16 year olds is gender balanced.**
- **The HoS has initiated a weekend early outreach programme for 13/14 year olds hosted in TCD Physics. This is gender balanced in participants and in educators.**
- **The SATC wrote to Science Foundation Ireland (SFI) in relation to issues with maternity leave for research staff on SFI contracts. SFI revised its maternity policy.**
- **Key School meetings are timetabled during the core hours of 10am-4pm weekdays.**
- **Staff members are taking AURORA training.**
- **SAT members have been supported to attend UK and EU workshops.**
- **Female undergraduates are funded to attend Women in Physics conferences and have networked amongst the years.**
- **A female Physics network of alumni has been initiated.**
- **The SATC has organised national events promoting women in Physics eg. First Irish University Women in Physics meeting, UNESCO International Year of Light 2015 event: Focus on Women in Light and used our national data as part of the International Congress of pure and Applied Physics (ICWiP) Irish team, 2014.**
- **40% female School seminar speakers since target set in 2013.**

[Section 4: 4534 words]

5. Any other comments: maximum 500 words

Please comment here on any other elements that are relevant to the application; for example, other gender-specific initiatives that may not have been covered in the previous sections.

TCD Physics has built substantially on its work for Juno Practitioner status and seen a change in culture in its environment to the extent that even retired colleagues consult with the SAT, keen to promote women in Physics.

From the outset the SAT has been inclusive of all staff, has gathered quantitative and qualitative data and implemented initiatives across staff categories. The SAT has shown leadership within TCD and externally across a variety of communities.

A summary of key impacts achieved to date are:

- The School leads national initiatives which support Athena SWAN and Juno principles and has strong external linkages to build upon best practice nationally and internationally
- The SAT leads national data collection
- The SAT leads the sharing of information via the initiation of an Irish Physics Womens Inter-University Network
- The SAT leads national Women in Physics events
- The School has devoted significant time and energy to very detailed analysis of six years of undergraduate performance and retention across genders, years, modules and course cohorts to avoid any bias.
- Undergraduates in TCD Physics can be confident that their performance and retention is of vital importance to the School and that AS initiatives will address any issues that could compromise equality initiatives.
- The SAT initiated annual national data collections so we could benchmark our performance amongst Irish University Physics Departments.
- A Postdoc Forum was initiated and the PRLs are active promoting researcher interests via seminars and workshops.
- TCD Physics postdoc career aspirations and reality have been investigated.
- First Thursday coffee is embedded to encourage networking amongst female staff, particularly research staff.
- A Physics promotions ladder has been initiated.
- SATC contributed to the new Faculty Returners' leave policy offering teaching reduction following periods of maternity/sick leave.
- The School offers Physics Scholarships for female undergraduates.
- The School's outreach TYPE programme for 15/16 year olds is gender balanced.
- The HoS has initiated a weekend early outreach programme for 13/14 year olds hosted in TCD Physics. This is gender balanced in participants and in educators.
- The SATC wrote to Science Foundation Ireland (SFI) in relation to issues with maternity leave for research staff on SFI contracts. SFI revised its maternity policy.

- Key School meetings are timetabled during the core hours of 10am-4pm weekdays.
- Staff members are taking AURORA training.
- SAT members have been supported to attend UK and EU workshops.
- Female undergraduates are funded to attend Women in Physics conferences and have networked amongst the years.
- A female Physics network of alumni has been initiated.
- The SATC has organised national events promoting women in Physics eg. First Irish University Women in Physics meeting, UNESCO International Year of Light 2015 event: Focus on Women in Light and used our national data as part of the International Congress of pure and Applied Physics (ICWiP) Irish team, 2014.
- 40% female School seminar speakers since target set in 2013.

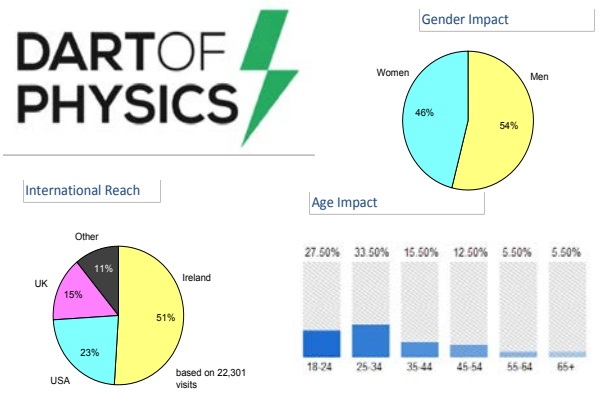
[Section 5: 472 words]

6. Case studies: impacting on individuals: maximum 1000 words

__Two__ individuals working in the department should describe how the department's activities have benefitted them. The subject of one of these case studies should be a member of the self-assessment team (SAT), while the second case study should be related to someone in the department outside of the SAT. More information on case studies is available in the Athena SWAN handbook.

Dr Shane Bergin started his post as a Senior Research Fellow in the School of Physics in September 2012. Shane was awarded a 'Starting Investigator Research Grant' from Science Foundation Ireland to start a physics education research group within the School of Physics. Prior to this Shane worked at Imperial College London where he was involved in Athena SWAN applications and their Postdoc Development Centre. Shane's TCD appointment brought this to our School making forging contacts and sharing best-practice on postdoctoral and equality issues. Dr Bergin founded a postdoc forum with the support of the School of Physics where issues such as teaching, contracts, writing research proposals, etc. are discussed through workshops and guest lectures. As well as organising practical activities on issues like preparing ones CV, Shane has raised attention for postdoctoral career progression at a College and National level. He has met with Prof. Mark Ferguson (Director, Science Foundation Ireland) to present his findings from a survey comparing postdocs career ambitions to the career realities of their predecessors. These data have informed Trinity's proposal to found a Postdoc Development Centre of its own in the coming years. The School of Physics is also very supportive of this initiative.

Shane's research focuses on the way in which we teach and learn physics through formal structures (such as lectures and labs) as well as informal means (such as outreach or public engagement). Both of these pursuits are seen by our School as essential elements in attracting and maintaining a gender-balanced cohort of students. School-based actions and policies set in place by the SWAN committee have better enabled Shane to do this work. Gender is a recurring theme in Shane's physics-education research. The SWAN committee has worked with Shane to interpret his findings and proposed best-practice for the way we teach and learn in our School. Shane has been fully supported by the School of Physics in his public engagement campaigns bringing physics to Dublin's metro train (the DART) through his DARTofPhysics project. Gender equality was central to this initiative and this is reflected in the excellent gender balance of visitors to the campaign's



website (see figure). Shane's outreach work has been recognised by the European Commission and the American Association for the Advancement of Science (AAAS). In the coming year, Shane hopes to secure a permanent academic position continuing his research on physics education.

Gillian Gunning has worked in the School of Physics for 13 years as a Senior Technical Officer in the undergraduate labs and as the Radiation Protection Supervisor. Over the years the School has made every effort to help balance her developing career and personal life. She took an early career break for 1 year in 2013 to travel around the word. She also took maternity leave on 2 occasions, the second leave was extended to 1.5 years by means of parental leave when her husband was contracted to work in the USA. The School supported this extra leave and adjusted her work hours on return to coincide with her new regime with children. Gillian is studying for a PhD and is due to submit her thesis in 2016 which again the School showed their supported by allowing her to dedicate 1 day a week to research from 2014 onwards. Towards the end of 2014, a 3 year part-time contract as College Radiation Safety Officer became available and Gillian was appointed to the position. The School of Physics accommodated Gillian's request to develop her career and take this part-time position by making her role in the School of Physics part-time for the duration of the new contact. Her research allocation time was reduced on a pro-rata basis to 0.5 days but this will be reassessed as she approaches her submission deadline so that the School can help her achieve her goals.

[Section 6: 634 words]

Figure 42: TCD Physics students at Women in Physics networking event
(Courtesy: Diana Morosan and Eithne McCabe)

6. Action Plan

The Action Plan should be presented as a table, comprised of prioritised actions to address the issues identified in this application. For each action, an appropriate success/outcome measure should be defined, as well as the person/position(s) responsible for the action, and timescales for completion. The plan should cover current initiatives and your aspirations **for the next three years**. Actions, and their measures of success, should be **S**pecific, **M**easurable, **A**chievable, **R**elevant and **T**ime-bound (SMART).

TCD SCHOOL OF PHYSICS AS SILVER AWARD ACTION PLAN

Abbreviation	SAT Member
CTO	Chief Technical Officer
DUTL	Director of Undergraduate Teaching and Learning
DPTL	Director of Postgraduate Teaching and Learning
EO	Equality Officer
HoS	Head of School
OC	Outreach Coordinator
PFL	Postdoc Forum Leader
SA	School Administrator
SATC	Women in Physics/SAT Chair

Act. no.	Issue and Action Area Highest priority bold	Action already taken by April 2015	Further action planned from April 2015	Respons-ibility	Timeline	Success Measure
2. Self-Assessment Team: Impact 5.1						
2.1	Managing SAT team membership	SAT initiated December 2012	The team membership will be continuously under review to maintain a balance of enthusiastic members between key Executive roles and staff with gender/caring roles.	SATC	On-going	Effective SAT with representation of all levels of staff and students.
2.2	**SAT training and awareness for staff**	All non-student members have taken LEAD (Equality and Diversity on-line training) SATC has taken unconscious bias training. SAT members have read relevant College policies. Three SAT members attended launch of new College policy on Gender Identity and Gender Expression Policy.	Remaining SAT members to take unconscious bias training as soon as available. Only offered to Provost, College Executive and Promotions Panels so far.	SATC	Apr 2015-Dec 2016	Target: 100% SAT has taken LEAD and unconscious bias training by end 2016
2.3	SAT student training	While all SAT staff members have taken LEAD training, students cannot currently.	Secure suitable LEAD access/or equivalent programme for SAT student members because this national on-line programme is not available currently to students. Similarly for unconscious bias training.	SATC/EO to consult with Vice-Provost	June 2015- June 2016	LEAD or equivalent and unconscious bias training is available to SAT student members.
2.4	Funding/ support for SAT members promoting the School's AS activities	The School has already funded and supported events/workshops promoting such activities	Continued support to promote best practice.	HoS	On-going	Target: The School will be viewed as a leader/role model in AS activities nationally and will also share its experiences with other Physics Departments in Ireland.
2.5	Interaction with other TCD AS Schools	Quarterly meetings with other TCD AS Schools in INTEGER/AS College committee. Joint coffee event for all staff members of all AS Schools, Dec 2014.	Continue regular interactions with other TCD AS Schools, host joint events for all AS Schools	SATC	Ongoing Apr 2015-Apr 2018	Excellent communication between all AS Schools. Sharing of best practice.

3. The Department and its members: Impact 5.2						
Student Data						
3.1	**National University Physics data collection** – currently an issue as relevant data is not available via the Higher Education Authority	TCD has collected two rounds of national data across all seven University Physics Departments for 1 Oct 2013 and 1 Oct 2014. Resultant data was shared with these Departments	TCD Physics to continue national University Physics data collection until/if the HEA collects and supplies relevant data	SATC, SA	1 Oct 2015, 2016 and 2017	Annual data available for benchmarking nationally.
3.2	**Undergraduate recruitment target**	Extensive and novel outreach (Walton Club, TYPE, Female Scholarships) is targeting talented females	Recruit a higher percentage of females	OC	Ongoing Apr 2015-Apr 2018	Target: An Increase of 20% on 2014 undergraduate female recruitment by 2018 and 30% by 2021 with Walton Club impact
3.3	**Examiners' meetings: Undergraduate performance and gender**	Gender disaggregated degree data has been gathered over six years 2009-2014 and analysed	Draw the 2:1 and higher degree grade gender disaggregated profile to the attention of external examiners annually.	DUTL	Internal and External examiner's meetings June 2015, and annually	Early awareness of gender issues and performance
3.4	**Undergraduate performance and progression**	Gender disaggregated performance and completion/progression data has been gathered and analysed for six years 2009-2014	Continue to monitor undergraduate performance data in conjunction with completion/progression rate. Take appropriate action.	SATC, DUTL	Summer 2015, Summer 2016, Summer 2017	Target: Zero complacency in relation to any issue which might affect undergraduate performance (SATC, DUTL)
3.5	**Student Information System (SITS) data issues**	The new (2013) College Student Information System provides limited easily-accessible gender disaggregated data. This was raised by SATC with Academic Secretary and at College AS committee.	Request that the College's Director of Diversity and Inclusion prioritise the easy access to gender disaggregated data from the College Student Information System (SITS) .	SATC	Apr 2015-Dec 2016	Target: The ready availability of easily accessible gender disaggregated data on SITS

3.6	**Single cohort degree data tracking**	Gender disaggregated degree data has been gathered over six years 2009-2014 and analysed.	Use longitudinal data to investigate the gender grade profile of students who graduate in Physics. This currently involves looking at individual student profiles and will be enormously time-consuming. Request to College that SITS can make this information more easily accessible.	DUTL, SATC	Oct 2015-Dec 2016	Target: Understanding of the extent of any gender performance discrepancy within the same cohort of students
3.7	Course content, delivery and gender	Identified possible gender performance issue in our courses	Examine course content and delivery of third year modules initially to establish if this could possibly give rise to gender differences. Third year grades account for 35% of the overall degree, fourth year 65%. Develop and Implement strategy to address any issues arising. Repeat for fourth year.	DUTL	3rd Year and 4th Year modules by Sep 2016. Implement strategy by Apr 2017. Evaluate by Dec 2017	Target: Understand and address discrepancies in gender performance in 3rd and 4th years by 2018.
3.8	**Gender performance differences: soft data**	Identified possible gender performance issue in our courses	Use surveys and focus groups to investigate gender differences in performance in third and fourth years. Devise and implement strategy to address any issues arising in conjunction with 2.5.	DUTL and SATC	Gather soft data academic year 2015/16. Implement strategy academic year 2016/17. Re-evaluate Summer 2017. Evaluate by Apr 2018	Target: Understand and addres discrepancies in gender performance by 2018.
3.9	**Physics Science student early leavers' grades**	Identified possible issue with gender discrepancy in undergraduates leaving Physics early in Science	Identify the performance of Science students who leave Physics in early years	DUTL, SATC	Oct 2015-Mar 2016	Target: Increase the retention of Science Physics female and male undergraduate students from first to second year to 85% for both genders by 2018.
3.10	Undergraduate gender leaver differences: soft data	Identified possible gender leaver discrepancy for Physics Science students. First focus group has met.	Use student surveys and focus groups to understand why a disproportionate number of Science females have not continued from first to second annual examinations. Develop and Implement strategy to address any issues arising.	DUTL and SATC	Gather soft data academic year 2015/16. Implement strategy academic year 2016/17. Re-evaluate Summer 2017. Evaluate by Apr 2018	Support Target 3.9 ensuring balance in retention rates

Postgraduate Students						
3.11	Female point of contact for female postgraduate students	We have a low numbers of female postgraduates. Network of female alumni has been initiated who wish to support current students. First event with female alumni has taken place.	Increase the retention of female and male postgraduate students from first year to MSc or PhD graduation. Ensure every female postgraduate student is assigned a female member of staff as a point of contact. Organise specifically female-focused postgraduate events.	DPTL	Sep 2015, Sep 2016, Sep 2017	Target: Increase the retention of postgraduate students from first year to MSc or PhD graduation to 90% for both genders
3.12	Female postgraduate student participation	We do not understand reduced female partiipation but national fiscal cut-backs in funding happen to be co-incident with reduced percentage of female postgraduates 2012-2015.	Female focused postgraduate recruitment events - interaction with female academic and research staff. Evaluate recruitment impact and re-evaluate annually.	DPTL	Winter 2015, Winter 2016, Winter 2017	Target: An increase of 30% on 2014 female postgraduate recruitment by 2018
3.13	Postgraduate leavers without degrees	We have gathered data on postgraduate leavers without degrees	Currently all exiting postgraduates at viva stage are asked to complete an exit questionnaire. Extend this practice with interview where possible to students exiting without degree submission. Monitor numbers to ensure no leaver gender disparity emerges. Inform future action.	DPTL	Apr 2015 onwards	Supporting Target 3.11
Course applications, offers acceptances						
3.14	**Postgraduate Application data**	Identified an issue with obtaining complete postgraduate application statistics	Seek University support to develop a more comprehensive system which tracks all potential applicants so that a more accurate gender profile of postgraduate applicants is possible. If College support is not timely, develop a local pilot process	DPTL	Apr 2015-Apr 2016	Target: A tracking system for comprehensive monitoring of postgraduate applicants for academic year 2016/17.
Staff data						
3.15	**Kick-start the pipeline**	Gathered TCD and national data, all highlighting the vulnerability of the pipeline leading to female academic staff	To kick-start the pipeline, prioritise initiatives that promote more females applying for postgraduate and postdoctoral positions	DUTL, Leaders postdoc Forum	Sep 2015-Dec 2017	Target: Recruit 25% (just above national undergraduate final year female percentage) females at postgraduate (Year 1) and postdoctoral research levels by 2018

3.16	Monitor staff leavers' data	Relevant leaver's feedback is communicated to line manager of the exiting staff member	Continue to monitor leaver's data. Feedback any issues into future actions.	SATC/SA	Ongoing Apr 2015 – Apr 2018	Positive feedback from exiting staff, 90% recommending us to a future employee. Feedback from exiting staff informs future School actions and leads to a better environment for current staff.
3.17	Automate leavers' data collection	SA has to trawl through monthly lists of saff to get gender/leavers' information	Seek HR support to automate this data collection	SA	Sep 2015-Apr 2017	Automated leavers' data collection
3.18	Irish research funding agencies and female postdoctoral staff	SATC already raised maternity leave issues for postdoctoral researchers with SFI	Raise awareness of Irish funding agencies (SFI, IRC) of declining numbers of female postdoctoral staff in Physics and suggest measures to address this.	SATC	Oct 2015-Apr 2016	National initiatives to encourage more Physics female postdoctoral researchers

4. Supporting and advancing women's careers						
4.1	**Transparent recruitment procedures for research staff**	Identified the need for HR support to address deficiency in research staff recruitment	a: Support the College AS team's action to pilot more transparent recruitment procedures for research staff modeled on QUB/Imperial's practices. b: Support any pilot/mainstreaming of procedures for transparent recruitment of research staff.	PFL, SATC	a:Oct 2015-Oct 2016 b: Oct 2016-Apr 2018	Central HR support for recruitment of research staff. Target: Transparent research staff recruitment and reliable gender application statistics
4.2	**Focus on the talent pool**	We have drawn up an action plan, ready to activate as soon as we can recruit.	Modify the College advertisements to promote our involvement with Athena SWAN and our Juno Practitioner status and modify the standard College Equality wording on advertisements to actively promote applications from females.	SATC	Immediate or as soon as we are permitted to advertise	Target: 20% of applications for academic and research positions to be from females by 2018
4.3	Shortlist target		In the case where suitably high-calibre qualified candidates apply, ensure that serious consideration is given to shortlisting for interview at least one candidate of each gender.	SAT members on Physics recruitment panels	Every recruitment	Target: minimum one shortlisted candidate of each gender for interview shortlists where appropriately qualified candidates apply
4.4	Leave and Promotion	WiP/AS Chair contributed to INTEGER/AS College committee draft request for changes in the wording of promotions material. This has not been fully addressed.	Liaise with College AS committee and College Promotions committees to secure a policy statement on how career breaks including maternity/sick leave are considered in promotion.	SATC	Sep 2015-Apr 2016	College policy statement as to how leave periods are considered in promotions
4.5	Extend the promotions ladder	A promotions ladder process has been initiated for 2014 and 2015 for academic staff	Extend the promotions ladder to non-academic staff seeking promotion	HoS, SATC/CTO /SA	Each promotions round, 2016, 2017, 2018	A promotions support process for all staff
4.6	Encourage all staff to apply for promotion	The HoS already supports and advises all staff seeking promotion	Identify staff who may need encouragement to apply for promotion	HoS	Each promotions round, 2016, 2017, 201	A promotions process where men and women all feel encouraged to apply for appropriate promotions
4.7	SURE and gender		Ensure appropriate gender balance for SURE places. Promote AS initiatives in SURE advertising.	OC	Feb 2016, Feb 2017, Feb 2018	Target: 25% of SURE places are for females

4.8	**Postdoc centre**	A College application to SFI to form a postdoc centre had support from our HoS/PRL, but was rejected in 2013.	Support College initiatives support to establish a postdoc centre. Engage with the centre once established.	HoS and PRL	Apr 2015- Apr 2018	Target: A postdoc Centre by 2018.
4.9	LEAD/unconscious bias training	LEAD available to staff. Full take-up amongst staff SAT members, School Executive and staff on recruitment or promotions panels.	Liaise with College to ensure LEAD or an equivalent is extended to postgraduates, see 2.3. EO to include a request to staff that they take LEAD training – see Policy day action – and unconscious bias training when more widely available in College.	SATC	1 Oct 2015, 1 Oct 2016, 1Oct 2017	80% take-up of LEAD training by Dec 2016
4.10	Returner's leave	Pilot scheme in place	Monitor the uptake in the School of returner's leave and support its extension	SATC	On-going	Strong uptake of returner's leave
4.11	School seminars and TCD Physics conferences female plenary/invited speakers	Target of 40% female School seminar speakers has been met since its introduction in 2013	Staff to be reminded to make every effort to invite a percentage of female invited and plenary speakers to conferences in TCD Physics led by TCD Physics staff which is broadly in line with female percentages in that discipline with a target of 25% where appropriate.	SA	On-going	Maintain 40% School seminar speakers. Target: Physics staff respond that they have invited plenary and invited speakers with a target of 25% females where appropriate to that discipline.
4.12	Qualitative data: dealing with perceptions		Continue to analyse issues across staff categories. Communicate qualitative data to all staff. Obtain further qualitative data from students.	SATC	Every two years Dec 2015, Dec 2017	Identify key actions to address issues raised
4.13	Outreach and staff involvement		Monitor staff involvement in outreach. Report to SAT annually. Rebalance outreach initiatives, if necessary, to ensure both genders are represented in similar proportions.	OC	June 2015, June 2016, June 2017	Strong female visibility without overburdening female academic staff
4.14	**Women in Physics Scholarships**	Scholarships initiated in 2007	Continue Women in Physics Scholarships. Advertise these scholarships more widely nationally and internationally	DUTL	Dec 2015, Dec 2016, Dec 2017	Maintain the standard of current Women in Physics scholarships (currently within the top 1% of leaving Certificate grades nationally)

4.15	**Policy Day**	60% of exiting staff responses indicated that they had read the Dignity and Respect policy within the previous year.	The EO will remind all Physics staff and students of the HoS request that staff read (or re-read) key policies so that staff are kept up to date with policy changes and new policies such as the new Gender identity and Gender Expression Policy. EO to alert staff to take LEAD training.	EO	Oct 2015, Oct 2016, Oct 2017	Target: 80% of exiting staff responses indicate they have read key College policies within the previous year. Surveys show 80% satisfaction with the application of these policies in the School.
4.16	Lobby research funders	SATC wrote to SFI in relation to its improving maternity policy. SFI wrote a new maternity policy.	Lobby key Irish research funding agencies including SFI and IRC in relation to improved maternity/paternity/sick-leave provisions for staff and students employed on contracts funded by these organisations.	SATC	On-going	Improved maternity/paternity/sick-leave arrangements for research staff and students
4.17	Lobby via INTEGER and College AS committee		Secure a policy statement from College research committee on how part-time working is taken into account in research metrics, in the interests of a more equitable treatment of staff who are work part-time and their Schools.	SATC	Oct 2015-Apr 2016	A policy statement on research-active status for staff who work part-time.
4.18	Extend networking with AS/Juno Physics Departments	SATC initiated Irish Physics Network of Academic Women, initiated first meeting of Irish University Women in Physics, held Women in Physics national events, contributed as Irish team member IUPAP ICWiP (Canada, 2014)	Continue extensive networking in Ireland in relation to AS activities and in the UK via Juno/AS workshops	SATC/all SAT	Ongoing	Supporting Target 2.4 and awareness of best practice internationally
4.19	Extend unconscious bias training beyond SAT	SATC and any staff on promotions panels 2015 have taken this training	Lobby for the further roll-out of unconscious bias training to all personnel involved in teaching including postgraduate students	SATC	Oct 2015-Apr 2018	Target: 70% uptake of unconscious bias training uptake amongst teaching staff and postgraduates by Apr 2018