

Women in medical physics: numbers in Australasia

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Introduction

- Background
- Student enrolment
- ACPSEM membership
- APESM publication
- EPSM attendance
- Queensland ROMPs
- Conclusion

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Motivation

- Female participation in STEM workforces is widely discussed.
- Science in Australia Gender Equity Pilot of Athena SWAN program launched September 16, 2015.
- “Diversity underlies innovation”
- 25 universities, 5 medical research institutes will examine statistics related to women in science.
- Funding implications – in the UK, medical research institutes need ‘silver’ or ‘gold’ categorization to get funding
- We have numbers from universities
- AIR and RANZCR recording it
- IOMP survey published this year *
 - 7,024 respondents, 66 nations
 - 75% of the med phys workforce
 - did not include AU/NZ
- ACPSEM workforce survey:
 - hasn't included gender
- Last analysis was 2009 workforce planning report, where female participation was 32.5% (ROMPs)

Methods

- Analyses covered:
 - ACPSEM member database
 - APESM article first, senior and invited authors
 - EPSM abstract first, senior, and invited authors
 - Student enrolment
 - QLD ROMP workforce
- Gender assigned where
 - Known to us
 - Known to colleagues
 - Found on internet (LinkedIn, university profiles, etc.)
 - Census- and sample- informed estimation (gender-api and genderize.io services)
- Names removed where
 - Gender unknown (1% to 4%)
 - Located outside AU/NZ
 - Labelled 'engineering' (e.g. ABEC)

Student enrolment

Estimated masters enrolments

University	Male	Female
Adelaide	71% (5)	29% (2)
QUT	73% (19)	27% (7)
RMIT	62% (16)	38% (10)
UC	61% (11)	39% (7)
USYD	66% (21)	34% (11)
UOW	55% (31)	45% (25)
UWA	86% (12)	14% (2)
Total	64% (115)	36% (64)

Includes MSc students (coursework & research), MAppSci and MPhil students.

Estimated doctoral enrolments

University	Male	Female
Adelaide	57% (4)	43% (3)
QUT	89% (17)	11% (2)
RMIT	70% (7)	30% (3)
UC	100% (1)	0% (0)
USYD	58% (7)	42% (5)
UOW †	60% (26)	40% (17)
UWA	67% (4)	33% (2)
Total	67% (66)	33% (32)

Includes those doing integrated PhD.

ACPSEM membership

Cohort	Number	Male	Female
Branch members [†]	629	72% (453)	28% (176)
Certified ROMPs [†]	273	71% (193)	29% (80)
Certified DIMPs (Rad.) [†]	35	77% (27)	23% (8)
Certified DIMPs (NM) [†]	27	81% (22)	19% (5)
Chief ROMPs [‡]	38	79% (30)	21% (8)
Chief DIMPs [‡]	13	85% (11)	15% (2)

[†]Produced from data collected 17/07/2015.

[‡]Produced from data dated 23/2/2015.

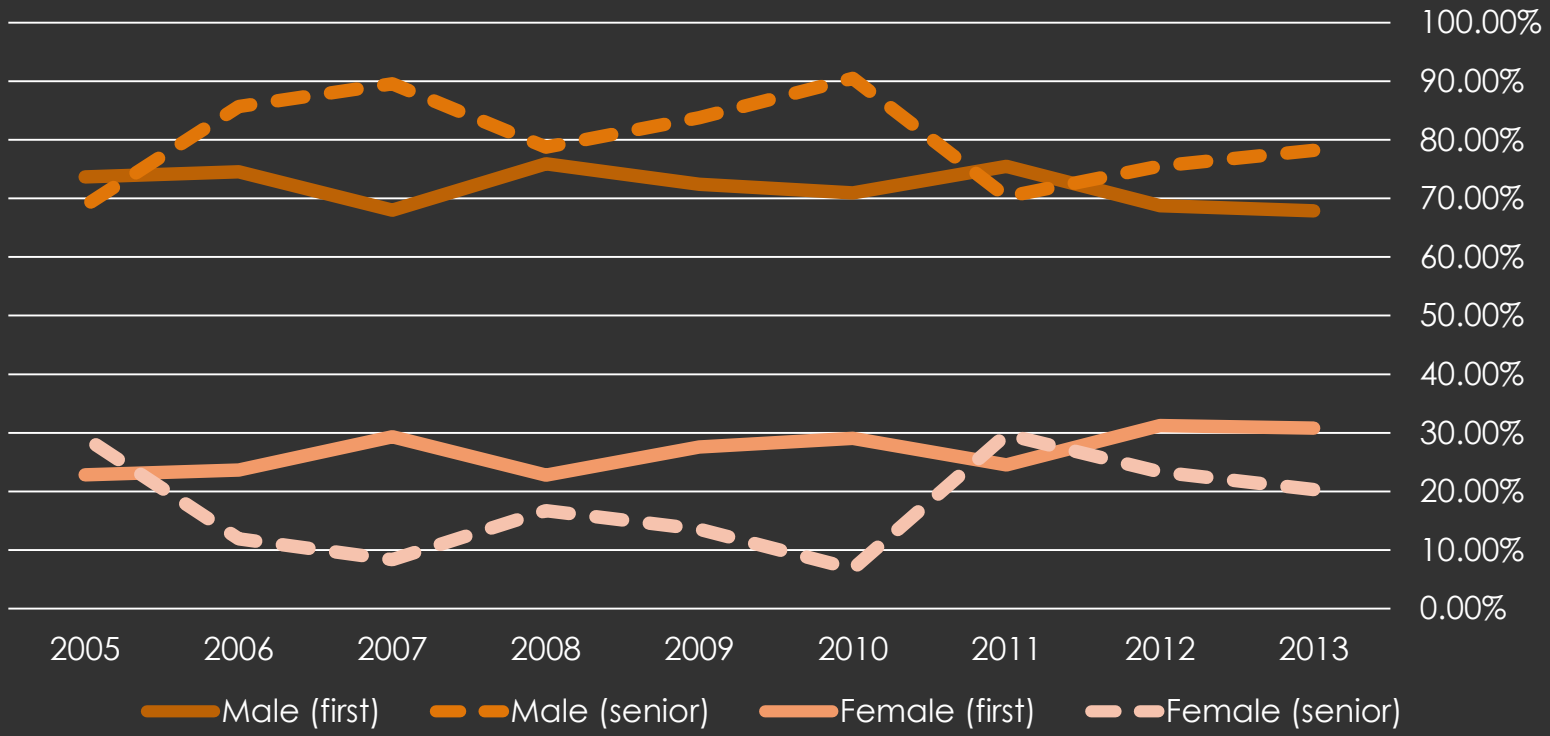
APESM journal

Cohort	Number	Male	Female
Proffered, first authors [†]	312	78% (244)	22% (68)
Proffered, unique first authors [†]	236	75% (236)	25% (58)
Proffered, senior authors [†]	260	77% (201)	23% (59)
Proffered, unique senior authors [†]	173	78% (135)	22% (38)
Invited authors [†]	31	81% (25)	19% (6)
Invited authors, unique [†]	30	80% (24)	20% (6)
Editorial board [‡]	25	80% (20)	20% (5)

[†] Data spanning all volumes from 2001-2014

[‡] Data circa 2015.

APESM journal



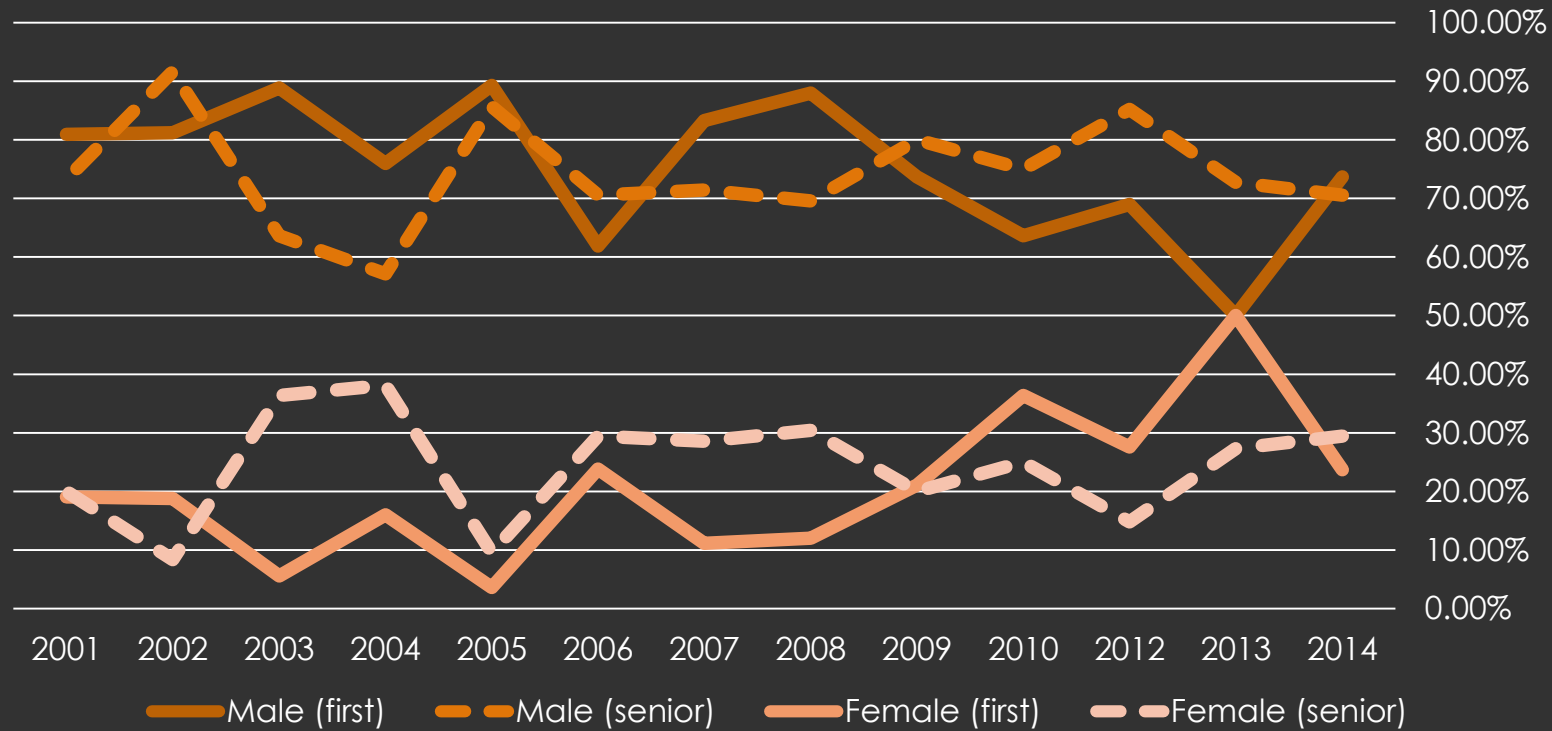
EPSM conference

Cohort	Number	Male	Female
Proffered speakers, first authors [†]	840	72% (607)	28% (233)
Proffered speakers, unique first authors [†]	461	72% (330)	28% (131)
Proffered speakers, senior authors [†]	627	81% (505)	19% (122)
Proffered speakers, unique senior authors [†]	296	77% (228)	23% (68)
Invited and keynote speakers ^{†‡}	24	88% (21)	13% (3)

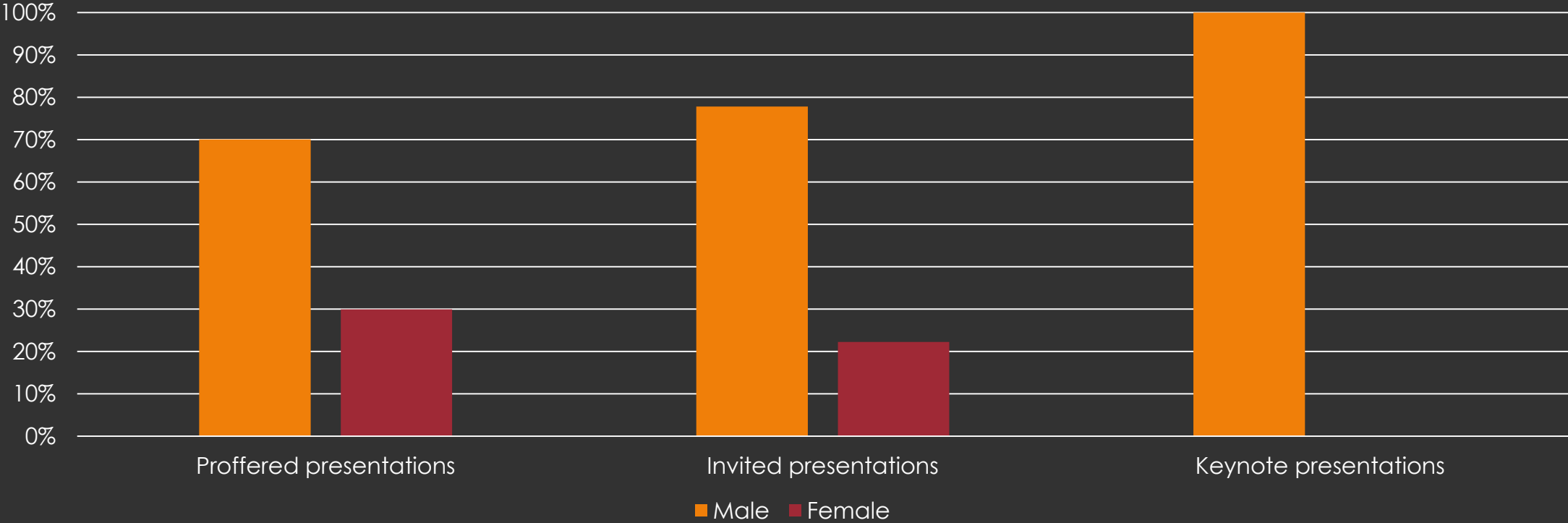
[†] Data spanning all volumes from 2005-2013

[‡] All invited and keynote speakers were unique.

EPSM conference



EPSM 2015, Wellington

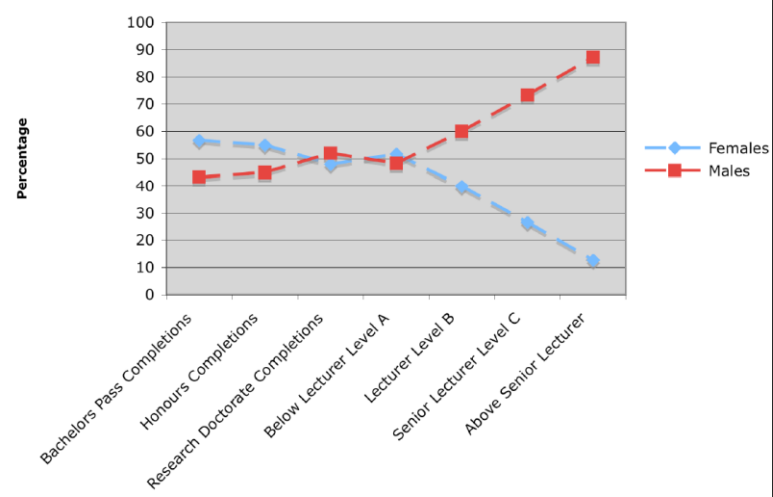
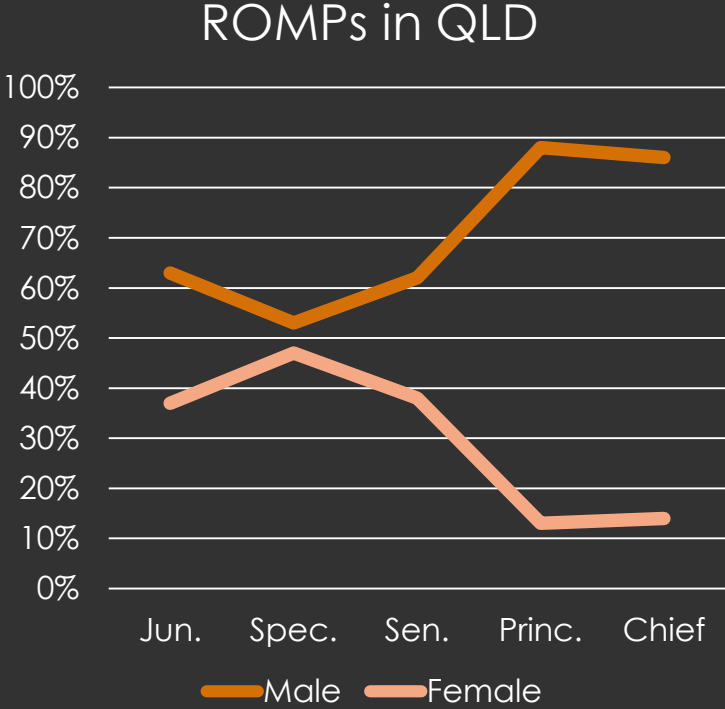


Queensland ROMPs

Seniority	Number	Male	Female
Junior (HP3 wage rate)	19	63% (11)	37% (7)
Specialist (HP4 wage rate)	15	53% (8)	47% (7)
Senior (HP5 wage rate)	13	62% (8)	38% (5)
Principal, (HP6 wage rate)	8	88% (7)	13% (1)
Chief (HP7 wage rate)	7	86% (6)	14% (1)
Total	62	66% (41)	34% (21)

*Approx. starting health practitioner wage rates (per annum):
HP3, \$60K; HP4, \$97K; HP5, \$110K; HP6, \$122K; HP7, \$139K*

Queensland ROMPs



Academic profiles by gender;
natural and physical sciences

Bell S (2009) Women in Science in Australia: maximising productivity, diversity and innovation.

Conclusion

- Women are under-represented at senior levels nationally
- Women are under-represented at senior levels in Queensland
- Queensland has highest female participation in the workforce
 - and also a larger number of junior physicists, compared to other branches
- Women account for 35% of students (n=235) and 28% of workforce (n=629)
 - combined with retirements, female participation in workforce will increase
- Recommending future longitudinal study analysing correlations between age, period of service, seniority and gender