The Situation of Gender Equality in Mathematics in Japan

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(English Version)

This is an English translation of the report created for the inauguration ceremony of the “Women of Mathematics: A Gallery of Portraits” exhibit held October 9, 2019 at the Delegation of the European Union to Japan. In the same month, the report was submitted by the authors to the President of the Mathematical Society of Japan.

Introduction

The promotion of gender equality is now an important issue, especially in Japan with its declining birthrate. Even in mathematics, a variety of gender-related activities have been conducted. However, gender equality does not seem to have been widely discussed as a **central issue in mathematics** among the leaders of the Mathematical Society or various graduate schools of mathematics in Japan. We speculate that the reason for this is that there has not been sufficient discussion on the **goal of gender equality**.

We believe the goal of gender equality is to create an environment in which **all people who aspire to study mathematics are equally welcomed and receive the same expectations and evaluations**, in which **roles are not fixed by gender**, and in which **minorities can study and conduct research without disadvantage or anxiety**. Gender equality is not about increasing the number of female mathematicians. It is about respecting both women and men equally as people who explore mathematics.

Countries around the world, which are ahead of Japan in terms of gender equality, have accumulated various statistics and have created effective programs for gender equality based on such statistics. In a document on initiatives for gender equality published by the Mathematical Society of London, it is pointed out that ([1]) "Good practice isn't about how many women are in the department, it's about processes that are fair, flexible, accessible and transparent to all.". These efforts have also been described as having a **positive impact on the environment for faculty, students, men, women and everyone in the community** ([1]), and it has been verified that these efforts have lead to an increase in the proportion of women. In other words, one indicator of the realization of such a positive environment is the proportion of female researchers and female students.

In the wake of a shortage of mathematicians, every person who aspires to study mathematics is a contributor to “the development of mathematics". We believe everyone in the field of mathematics, especially **the leaders who have influence over organizations,** should eliminate as quickly as possible obstacles that make people of certain attributes disadvantageous.

As shown in this current report, the percentage of women in mathematics in Japan is low compared both with other countries in the world and with other research areas in Japan. In particular, **unlike other fields in Japan, gender equality appears to be receding**. The decline in the percentage of female students in graduate school is **particularly alarming, especially for the long-term prospect for the field of mathematics**.

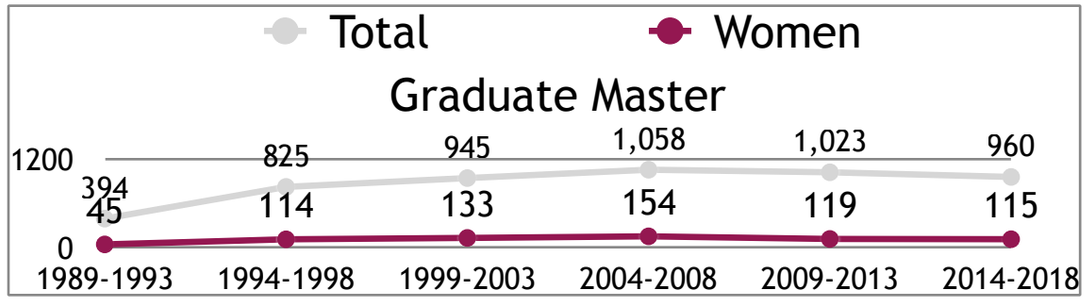
This indicates that the field of mathematics in Japan has a problem. While outreach program for girls and support for balancing work and family are increasing, it is plausible that compared with other countries, **the obstacles that female students and female researchers in mathematics face, particularly gender bias and sexual harassment, may have been overlooked** in Japan. It is well known that unconscious bias negatively affects the self-evaluation of female students and affects their career paths and career choices. It is also a factor that hinders the recruitment and promotion of women ([1,2,3,4,5]). **Several studies and proposals have been made, including training to measure the degree of individual bias and to remove as much of the impact as possible** ([1,4,5]). It has been found that sexual harassment has a serious impact on the short-term and long-term careers of the victims and witnesses, who may leave the field ([6]). Studies also show that **there are environments where sexual harassment "is likely to occur" and that it is possible by organizational effort to create an environment where it is "unlikely to occur."** Details proposals for specific initiatives have also been documented ([6], References [16]).

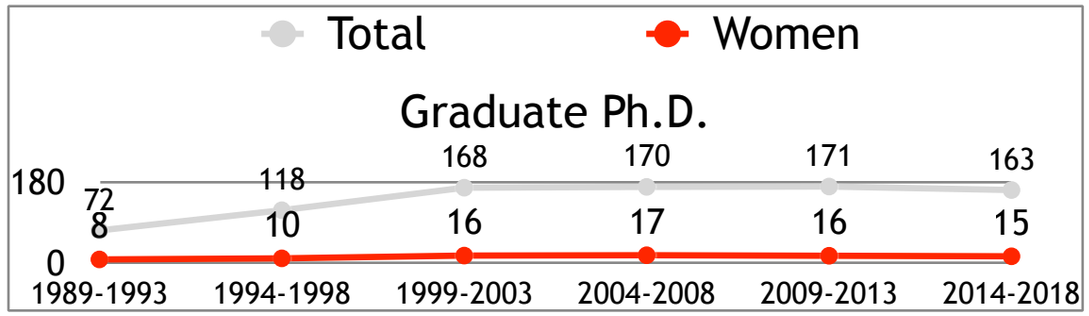
It is also necessary to review the current "Initiatives for Gender Equality". The previous document points out that "Good practice benefits all, staff and students, men and women. However, bad practice adversely affects women's careers more than men's." ([1]). **Gender Equality initiatives need to be monitored by the community to ensure that they do not seek more "special" roles for women or increase the bias against women's abilities.**

In this document, **we propose certain action for gender equality in the field of mathematics in Japan, based on statistical data on the current situation and initiatives in and outside of Japan**.

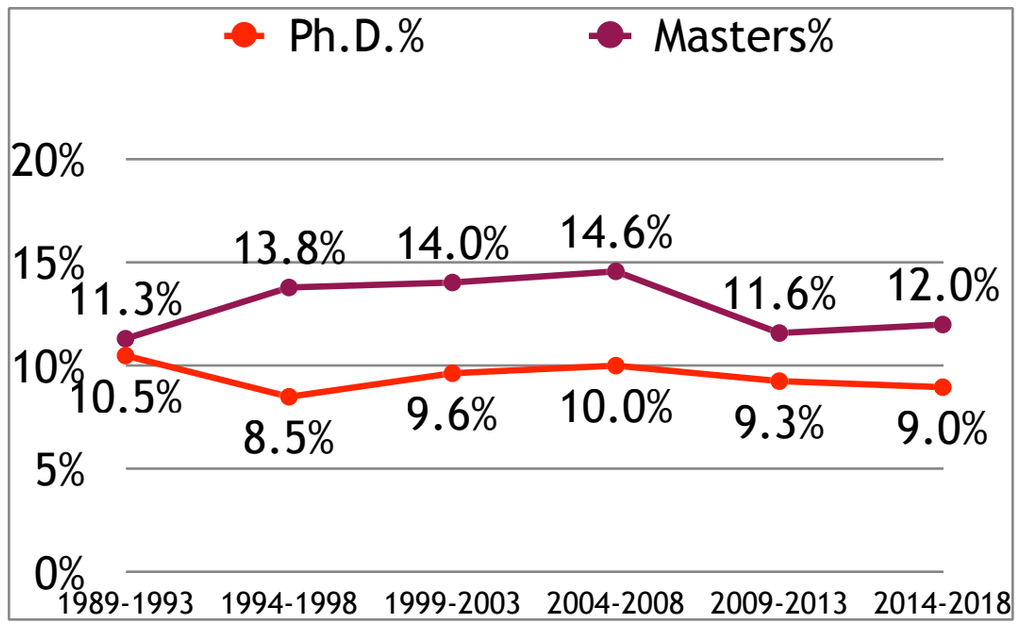
Graduate Degrees in Mathematics

Masters・Ph.D.
(Japan・Mathematics)





%Female



Data obtained from www.e-stat.go.jp※ Average over 5 year period

From 1989 to 2004, the number of graduate degrees awarded in Mathematics greatly increased. Although the percentage of women increased slightly for the Masters degree, no increase was observed for the Ph.D., and the percentage of women have been slowly but steadily decreasing for the past 10 years. In particular, the percentage of women obtaining a Ph.D. in mathematics in 2018 was 6% (9 out to 150)*, which was the lowest in the past 20 years.

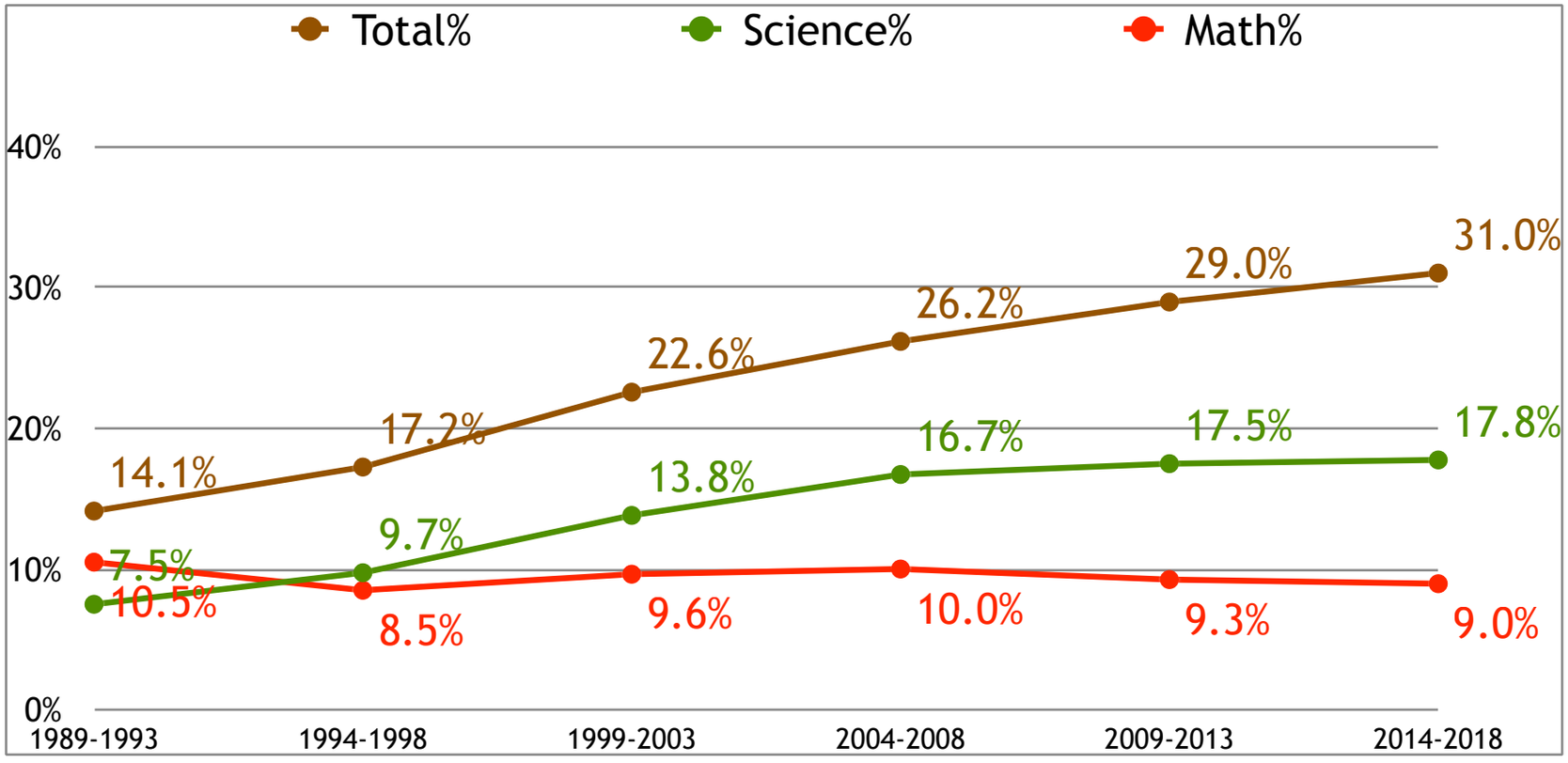
<u>If the same proportion of women advanced to the Ph.D. program after a Masters degree as that of men, then the percentage of women for Ph.D. should be about 12%. It may be important to analyze why a larger proportion of women decide not to enter the Ph.D. program</u>

※Mathematics includes such fields as Pure and Applied Mathematics, Statistics, Informatics and Data Science. Science consists of Mathematics, Physics, Chemistry, Biology, Geology and Nuclear Science

*Data from <u>www.e-stat.go.jp</u>, See Reference【1】Graduate Degrees in Mathematics

Comparison with Other Fields

Ph.D. Recipients （Japan, Comparison with Other Fields)



Data obtained from www.e-stat.go.jp※ Average over 5 year period

30 years ago, the proportion of female recipients of a Ph.D. in Mathematics was higher than that of Ph.D.s in science in general. In the 30 years, the percentage of female recipients of a Ph.D. has increased in other fields, but no major increase was observed in mathematics, and the percentage has been slowly declining in the last 10 years. There may be some obstruction which prevents women from deciding to obtain a Ph.D. in mathematics.

※Science includes Mathematics, Physics, Chemistry, Biology, Geology, Nuclear Science, and Others.

For Masters Degree 2014-2018: Total 29.7%, Science 21.9%, Math 12.0%.

For Bachelors Degree 2014-2018: Total 45.6%, Science 27.7%, Math 20.0%.

(Source: www.e-stat.go.jp)

Ph.D. in Math, Comparison with the US

Ph.D. Recipients (US, Math)

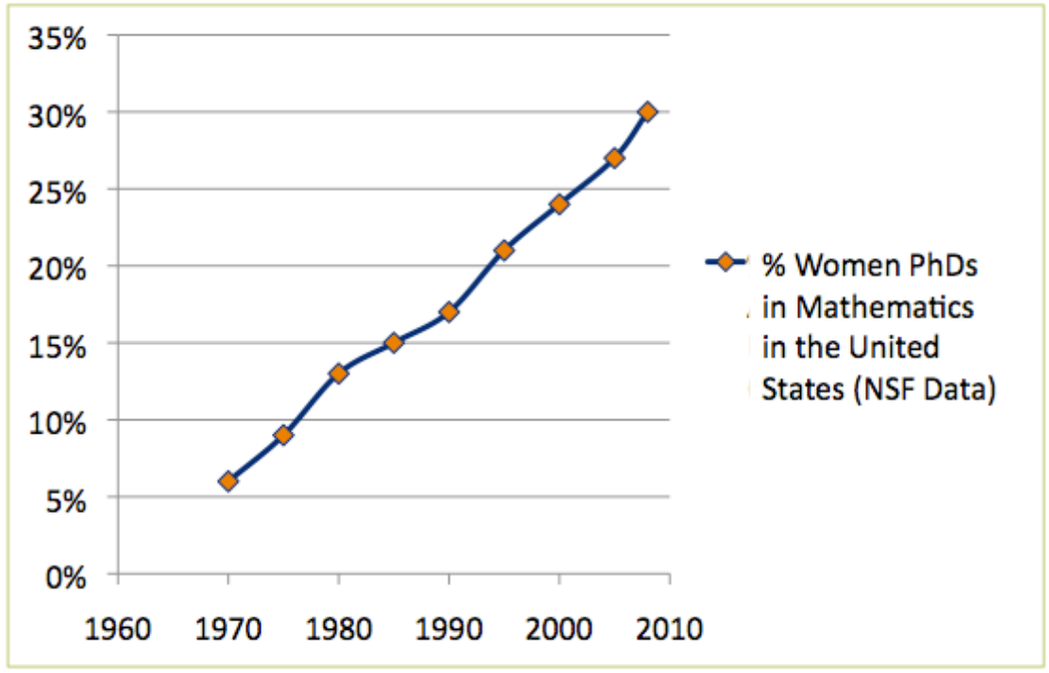
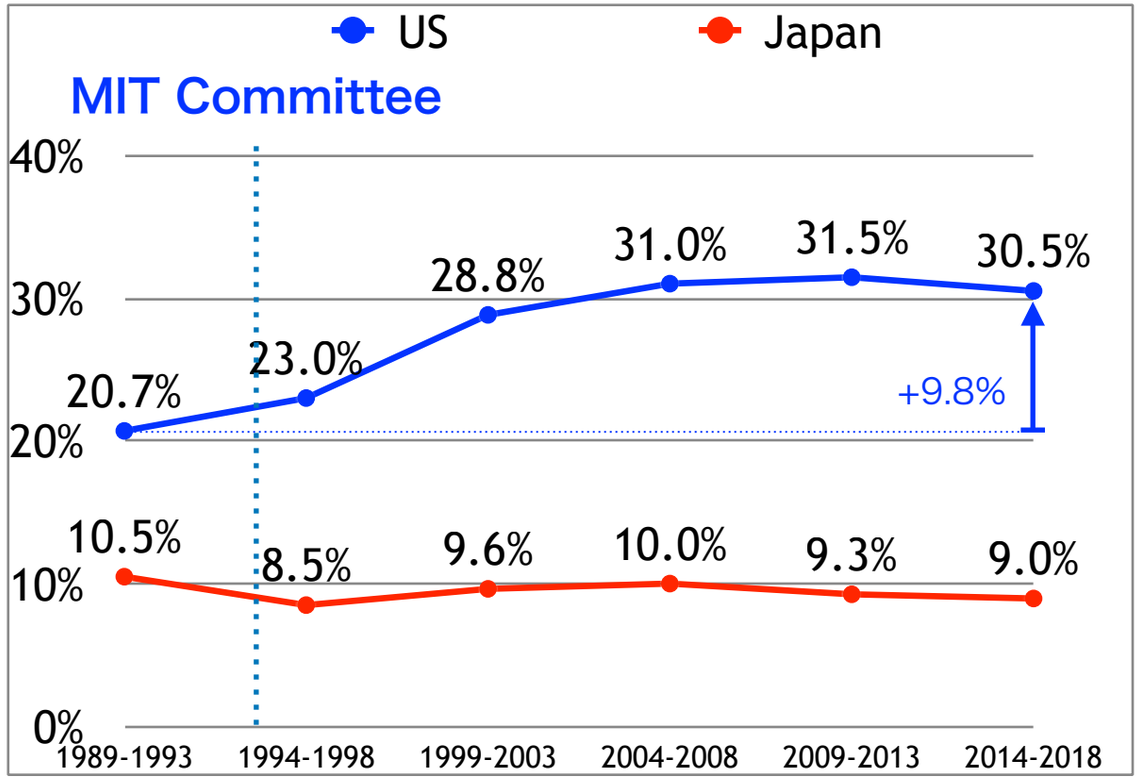


Fig. 1 Growth in women's participation. Percentage of Ph.D.s in mathematics granted to women in the United States 1966-2008 in intervals of 5-year averages.

Source: Alice B. Popejoy and Phoebe S. Leboy, Is Math Still Just a Man's World? Journal of Mathematics and System Science **2** (2012) 292-298.

%Female (Math, US-Japan)



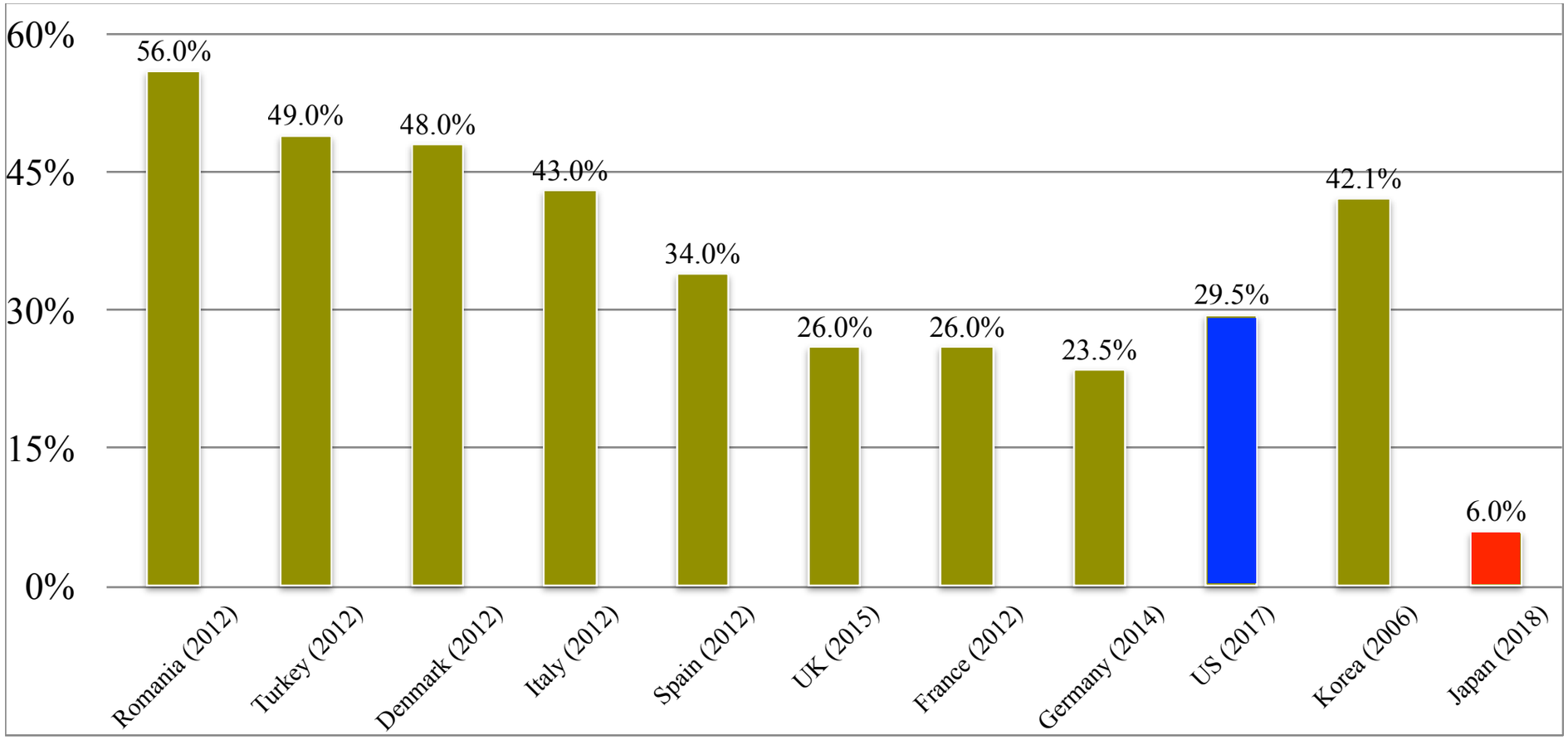
Data for US from AMS Annual Survey of the Mathematical Sciences, Data for Japan from www.e-stat.go.jp
Average over 5-years

The percentage of female Ph.D. recipients in mathematics in the United States has steadily been increasing from the 1970s until the early 2000s. Since 1989, the percentage has stagnated in Japan, while the percentage has increased by about 10% in the United States. After the MIT committee was formed in 1994, training to prevent gender bias in hiring, selection committees for academic prizes, review committees for research expenses, and organizers of conferences has been promoted at universities in the United States. ([3, 5])

Ph.D. Recipients of Various Countries

%Female of Ph.D. recipients (Various Countries, Math)

*Korean data %female in the Ph.D. program

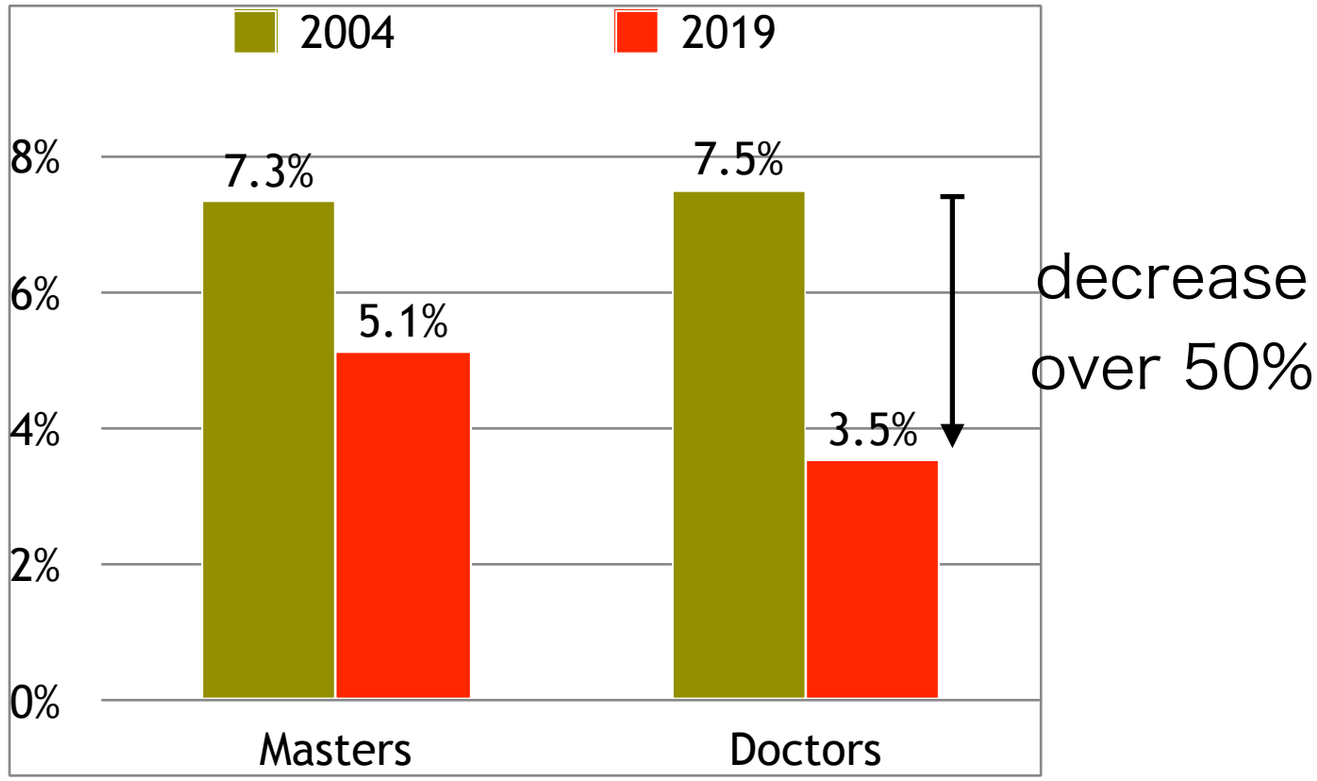


European data for 2012 from https://ec.europa.eu/eurostat/. All countries w/ 100 Ph.D. in Mathematics per year. German Data obtained from IWOTA 2016 presentation by M. Infusino. UK data obtained from Benchmarking Data Updated (April 2016) for years 2011-2015. US data obtained from AMS. Korean Data (enrollment in Ph.D. program) obtained from KWMS presentation by Wansoon Kim. Japanese data obtained from www.e-stat.go.jp.

The most recent data available on the web shows that the percentage of female Ph.D. recipients in European countries is about 30%. Compared with doctoral students in Korea, the percentage of female students in mathematics in Japan is remarkably low. A more systematic comparative study would be necessary for a more accurate analysis.

Graduate Students, 10 National University

Percentage of Female Graduate Students
(10 National University・Mathematics)



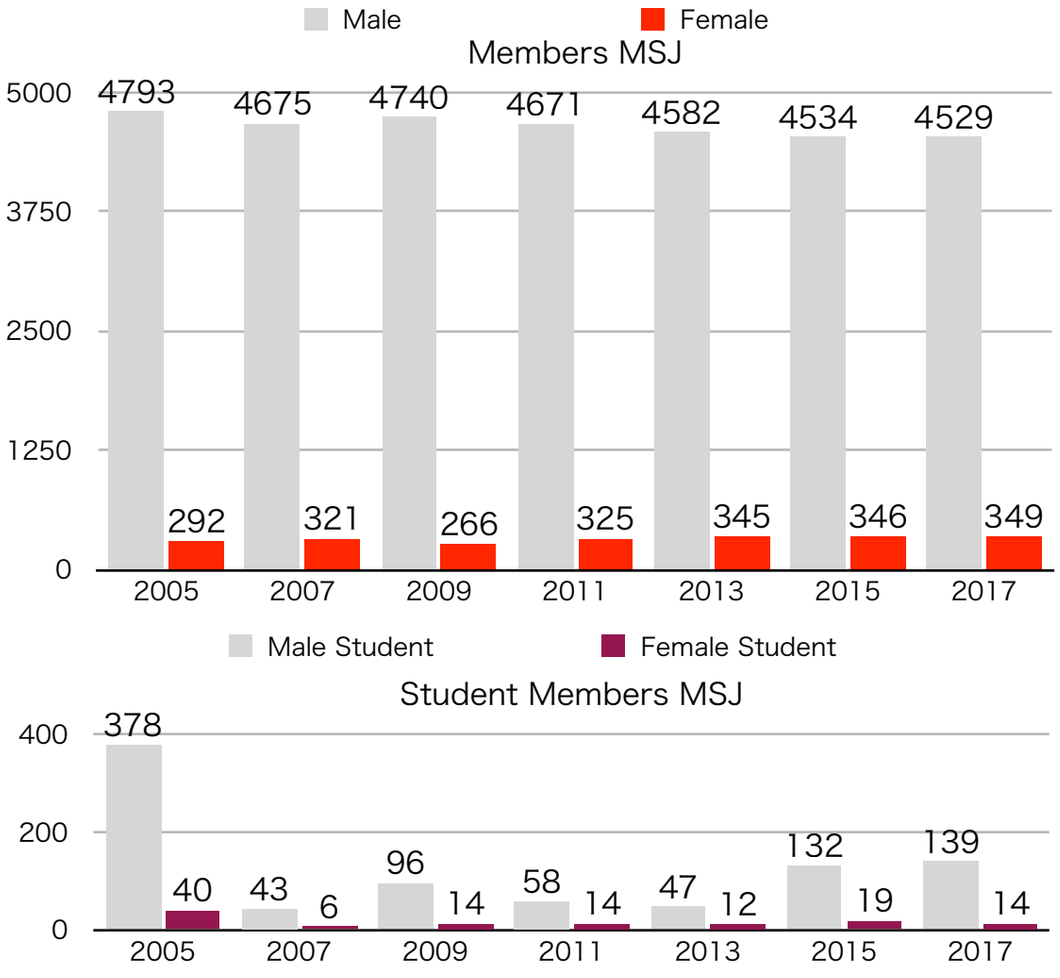
Data for 2004 provided by the MSJ. Data for 2019 obtained by web/phone/email from respective institution

In 2004, the Committee for the Promotion of Gender Equality of the Japanese Mathematical Society conducted a survey on the percentage of female graduate students in mathematics graduate schools at 10 national universities **(7 Former Imperial Universities, Tokyo Institute of Technology, Tsukuba University, and Hiroshima University)**. The percentage of female graduate students in both master's and doctoral programs has decreased since 2004, and the percentage of female graduate students in the doctoral program **has decreased by more than 50%.**

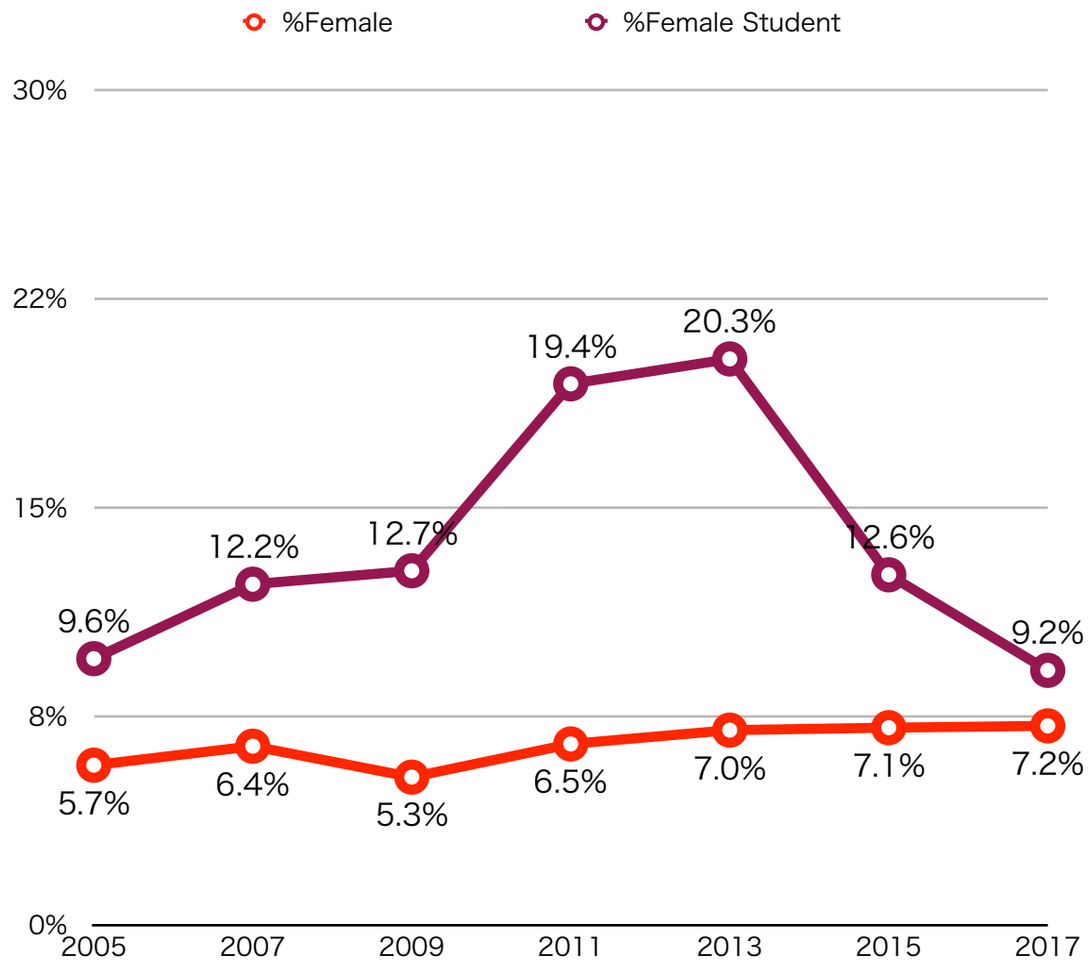
The total number of doctoral students enrolled at 10 universities in 2019 was 367, and it is estimated that these 10 universities account for more than 70% of the total number of doctoral students in mathematics in Japan. The situation of graduate students in these universities will greatly affect the future of mathematics in Japan both in the medium and long term, hence an immediate and positive change is hoped for.

Members of the MSJ

2005～2017* Male/Female Members and %Female



Data obtained from www.djrenrakukai.org

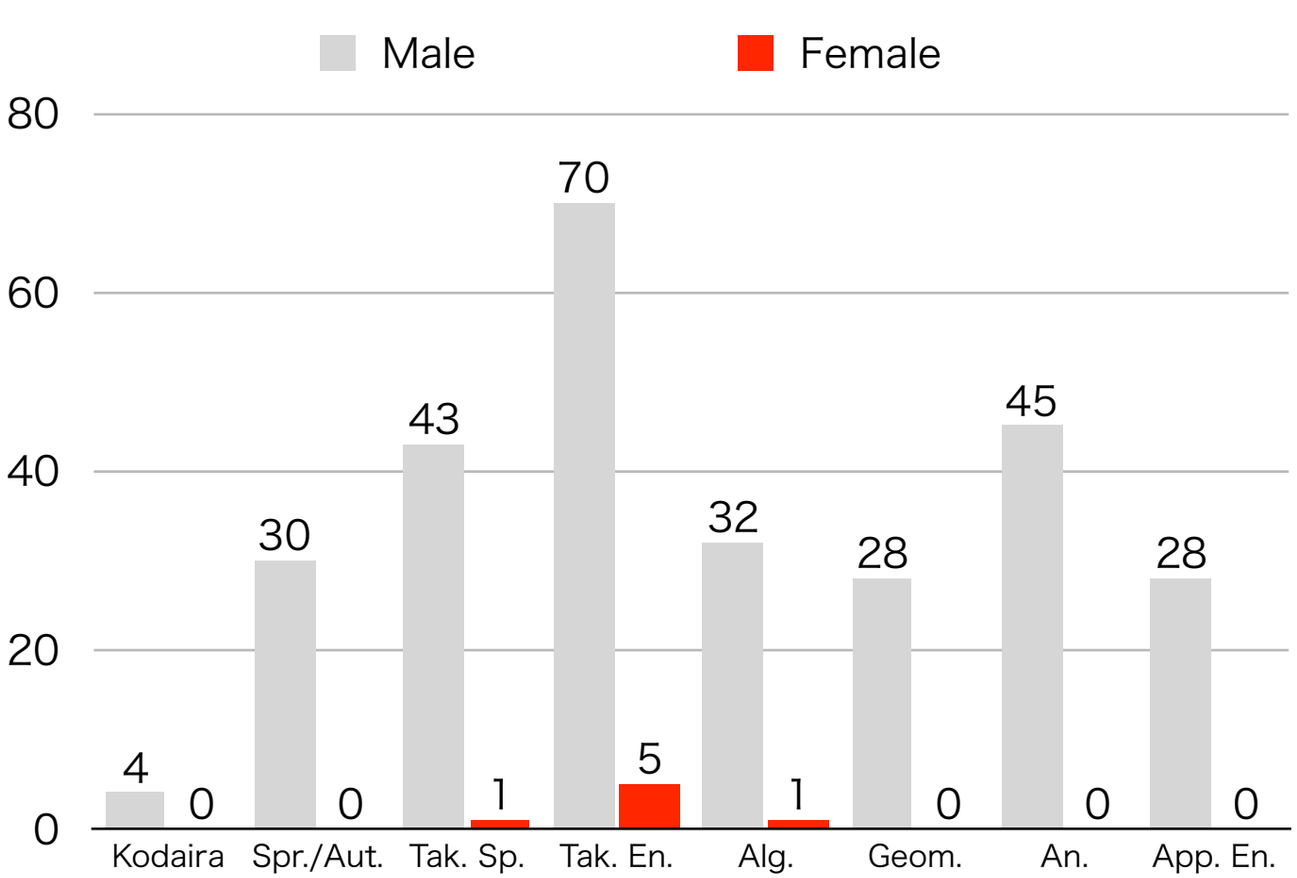


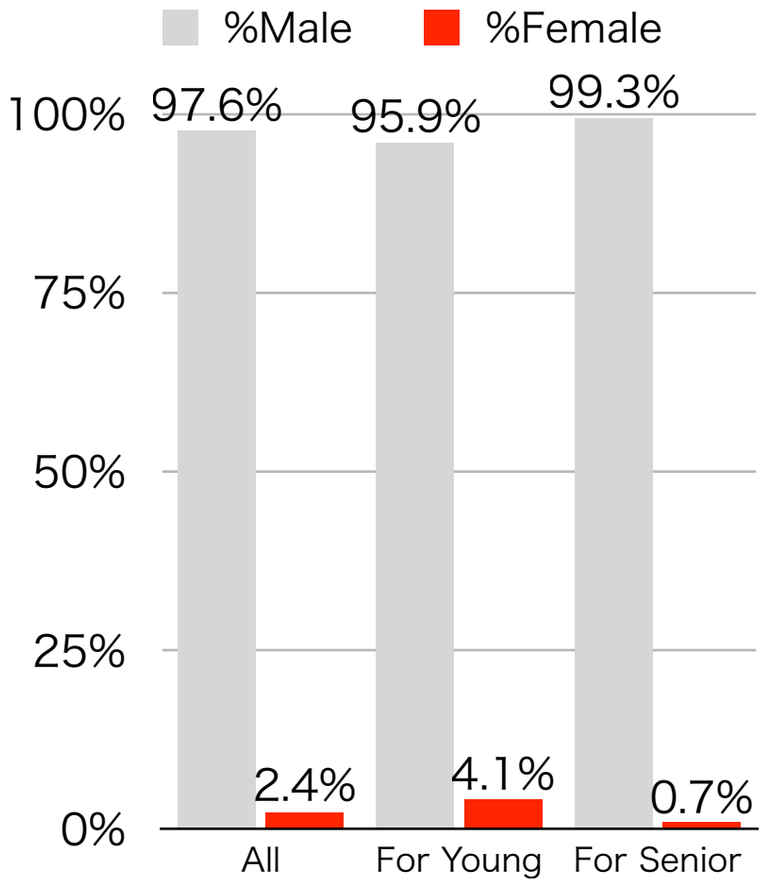
The survey on the number of female members of the Mathematical Society of Japan (MSJ) started in 2005. For the entire period, **the average percentage of female members was 6.2%**, and the **percentage of female members in the most recent 2017 survey was 7.2%**. Among student members, the **average percentage of female members in the entire period was 11.8%**, and the **percentage of female students in the most recent 2017 survey was 9.2%**.

*Based on survey by the Liaison Committee of Academic Societies. The definition of a member is either a general member or a student member.

Percentage of Women for MSJ Prize Winners

2005～2019　Male/Female Recipients of MSJ prizes





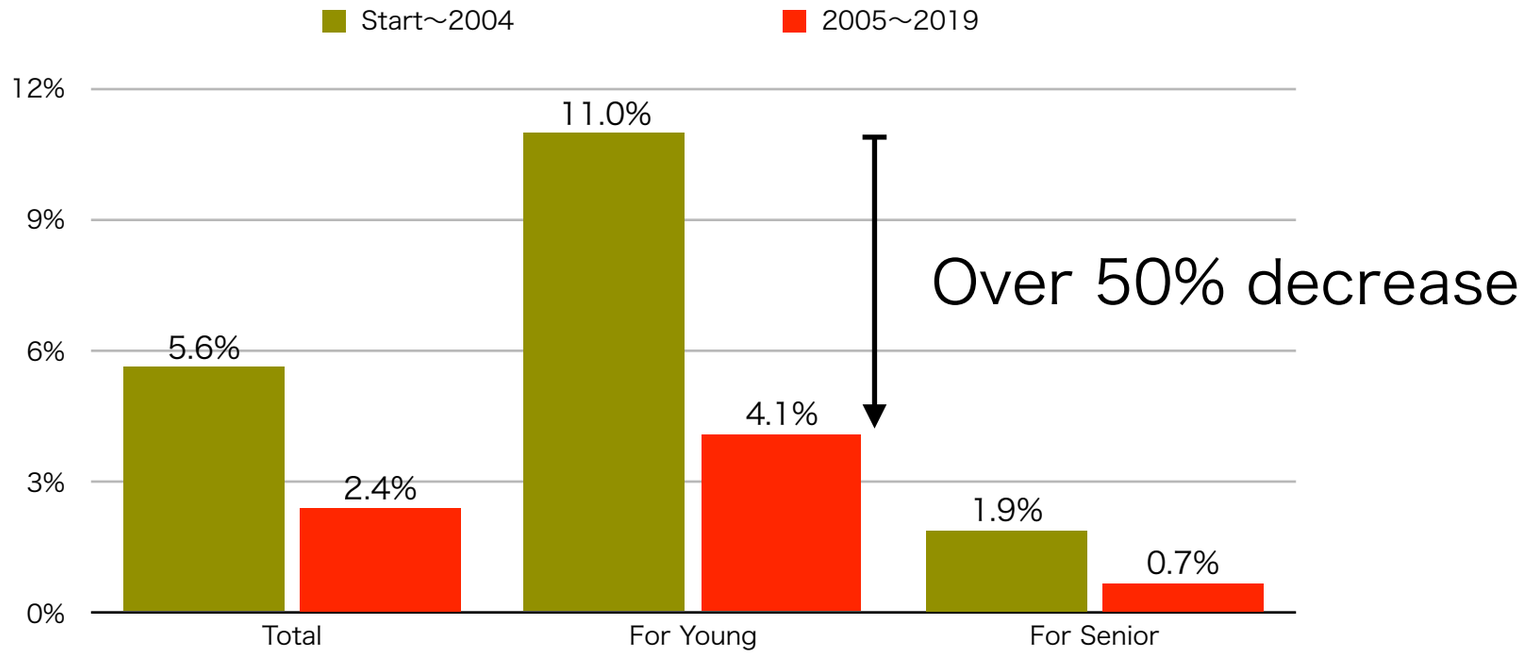
From webpage of the MSJ（Gender deduced from name. Ambiguous names were searched via personal or departmental webpage.）Prizes of the MSJ listed on https://mathsoc.jp/prize/ which are relevant to mathematical research.

During the 15 year period from 2005 to 2019, when the percentage of female members of the Mathematical Society of Japan was surveyed, **7 women in total were awarded a prize from the Mathematical Society,** which is 2.4% of the total 287 awardees. The percentage of women in the **prize for young mathematicians consisting of the Takebe Special and Encouragement Prizes as well as the Applied Mathematics Encouragement Prize was 4.1%**, and the **percentage of female in the prize of senior mathematicians was 0.7%**. All of these percentages were **below the average percentage 6.5%** of women members of the Mathematical Society during this period.

Since the average percentage of female student members is 11.8%, it is estimated that the percentage of female members among young members who are eligible for the prize for young mathematicians is higher than 6.5%.

Percentage of Women for MSJ Prize Winners

Comparison with before 2004



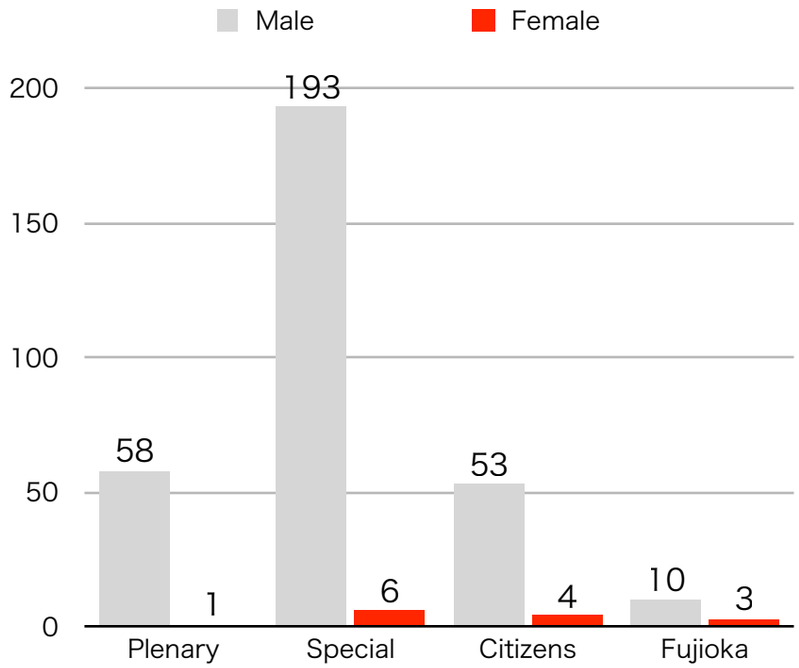
From webpage of the MSJ（Gender deduced from name. Ambiguous names were searched via personal or departmental webpage.） Prizes of the MSJ listed on https://mathsoc.jp/prize/ which are relevant to mathematical research.

Compared with the period from the start to 2005, the percentage of women who received awards from the Mathematical Society of Japan decreased for the period from 2014 to 2019. Overall, **the number of women who received awards for senior mathematicians from the Mathematical Society of Japan was 2 (1994: Iyanaga Prize, 2001: Geometry Prize) before 2004, and 1 (2011 Algebra Prize) after 2005.**

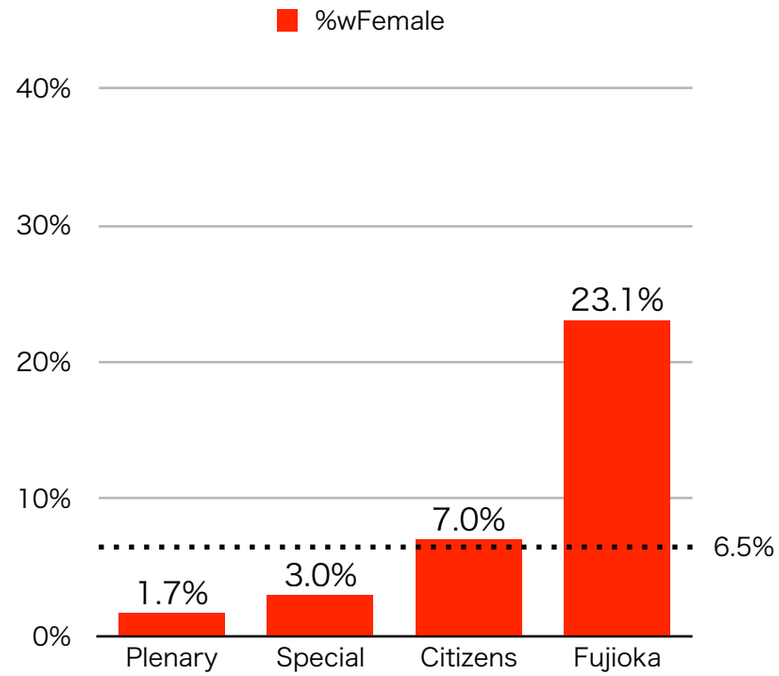
Before 2004, there are no data on the percentage of female members of the MSJ, but from the percentage of doctoral graduates, it is estimated that there has not been significant change from the data in 2005 (All members 5.7%, student members 9.6%). Before 2005, the percentage of women among the winners was close to this percentage, but **since 2004, the percentage of women among the winners has declined significantly**, even though the percentage of women among the members of MSJ and the percentage of women among the students members of the MSJ have both increased slightly. From the start through 2019, women accounted for 6.4% of winners of prizes for young mathematicians and 1.2% for prizes for senior mathematicians.

MSJ Invited Talks

2005～2019　Male/Female Speakers at the MSJ



Number of Male/Female Speakers



Percentage of Female

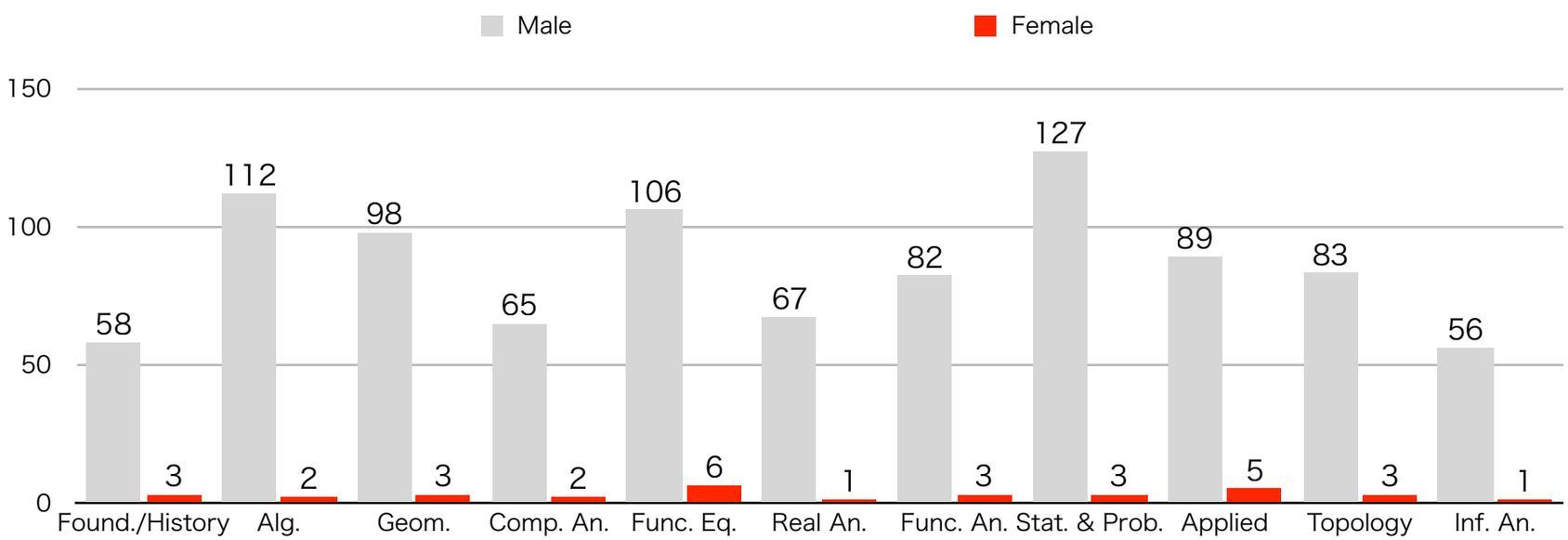
From webpage of the MSJ（Gender deduced from name. Ambiguous names were searched via personal or departmental webpage.）Prizes of the MSJ listed on https://mathsoc.jp/prize/ which are relevant to mathematical research.

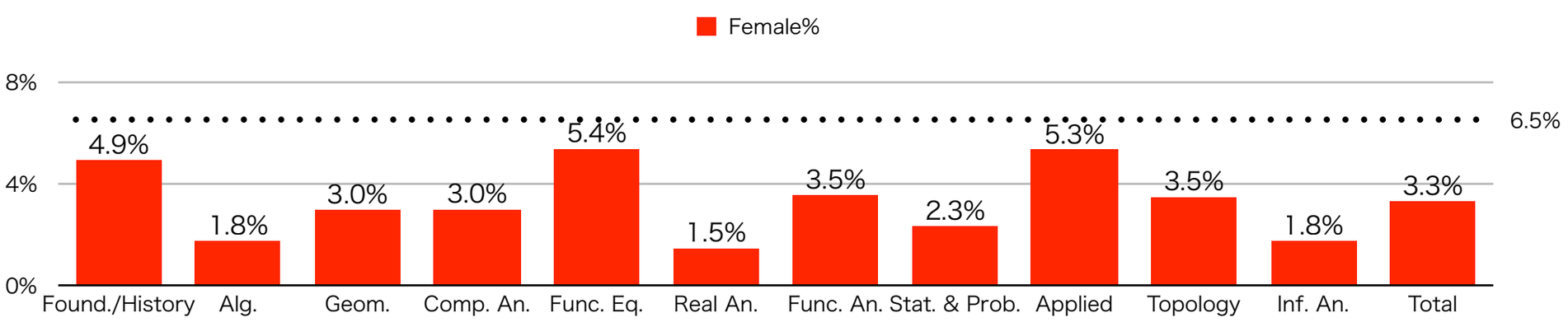
During the 15 years from 2005 to 2019, **the percentage of female plenary and special lecturer at the meetings of the Mathematical Society of Japan was less than the average 6.5% of female members of the Mathematical Society** during the same period. On the other hand, the percentage of female lecturers at the Citizens' Seminar and Fujioka Mathematical Classroom, which have strong outreach elements, exceeded the average of 6.5% of female members of the Mathematical Society of the same period.

According to research outside Japan, "Women are often asked to do 'human' work, not ‘research' work" ([2]). This may have a negative impact on performance and research evaluation. It is important to have the same expectations and opportunities regardless of gender.

MSJ Special Lectures

2005～2019　Male/Female Speakers at Special Lectures



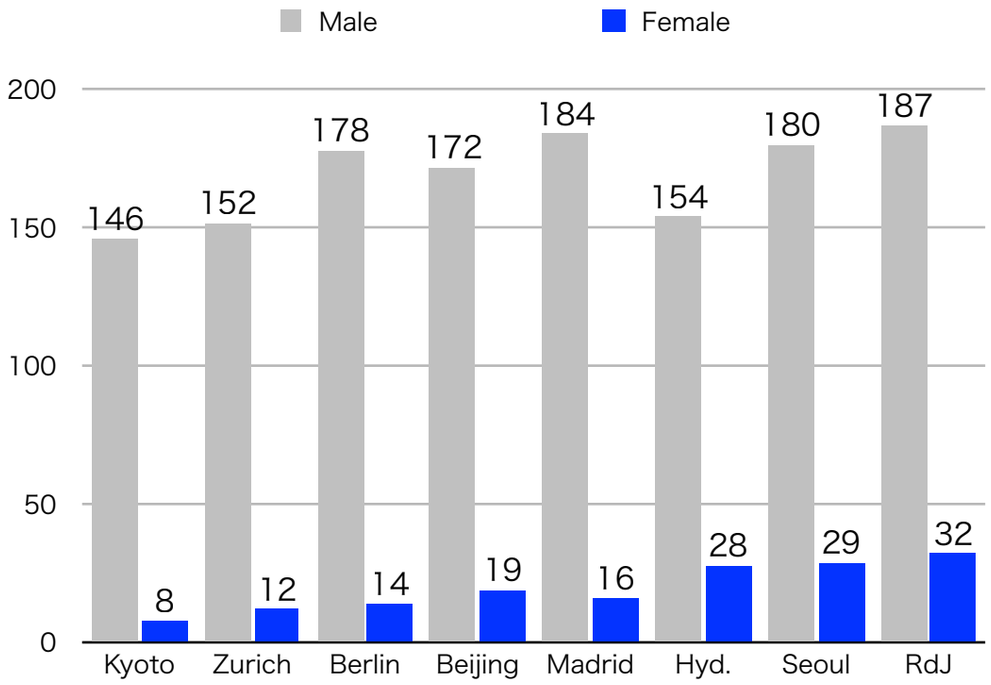


From webpage of the MSJ（Gender deduced from name.　Ambiguous names searched via personal or departmental webpage)

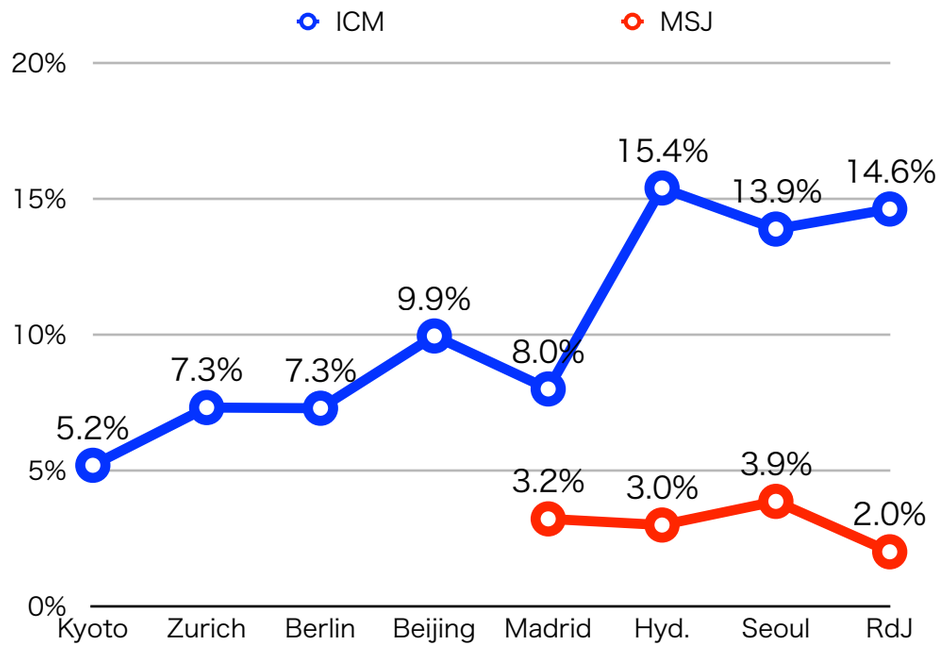
During the period from 2005 to 2019, a total of 975 speakers gave special lectures for one of the sections of the MSJ. The total number of female speakers was 32, and the percentage of female speakers was 3.3%. The percentage of female speakers for the contributed talk after Autumn 2018 (the only period where gender data for contributed lectures collected by MSJ) was 6.3% (Autumn 2018 @ Okayama University 6.5%, Spring 2019 @ Tokyo Institute of Technology 7.6%, Autumn 2019 @ Kanazawa University 4.7%), which is relatively high compared with the percentage of female speakers for invited talks.

Comparison to ICM and other Mathematical Societies Abroad

Percentage of Women Plenary and Invited Speakers at the ICM



Speakers



Percentage & Comparison MSJ

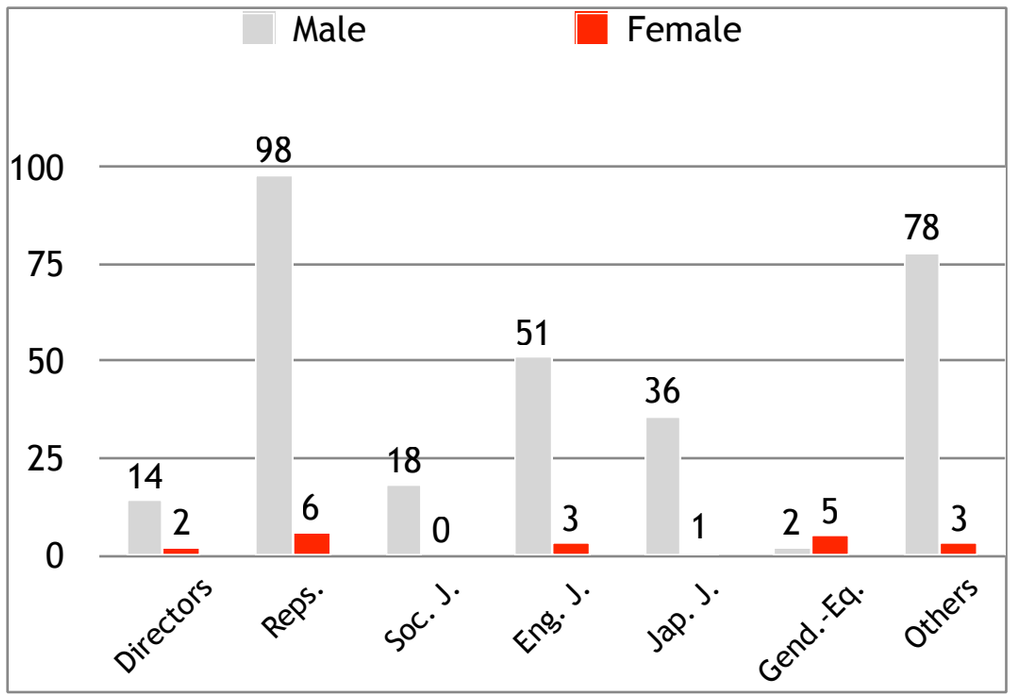
ICM Data obtained from https://zenodo.org/record/1976747#.XXed9i2KXOQ, MSJ represents Female% of Invited Talks at MSJ conferences in the corresponding 4 year period

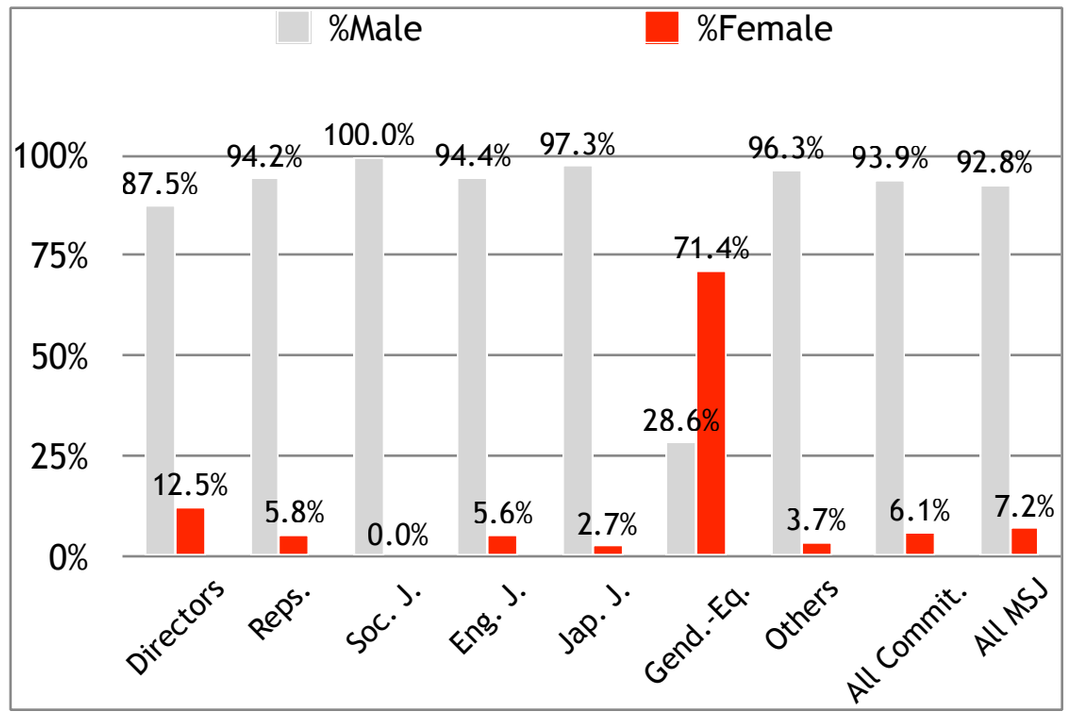
The percentage of women invited to speak at ICM is higher than in the past, as shown in the upper right graph in comparison with the percentage of women invited to speak at the Mathematical Society of Japan during the same period (every four years).

Looking at the percentage of female speakers at invited lectures by Mathematical Societies of the United Kingdom and the United States, the ratio of Invited Hour Address from the American Mathematical Society (AMS) from FY 2007 to FY 2016 was 20% (82 of 415), and the ratio of Special Session from FY 2012 to FY 2016 was 21% (3774 of 17718). The percentage of invited speakers for the British Mathematical Colloquium from FY 2018 to FY 2019 was 38% (43 of 113). See References [8] and [11].

MSJ Committeee Members

Male/Female Members of Committees of the MSJ (2017)





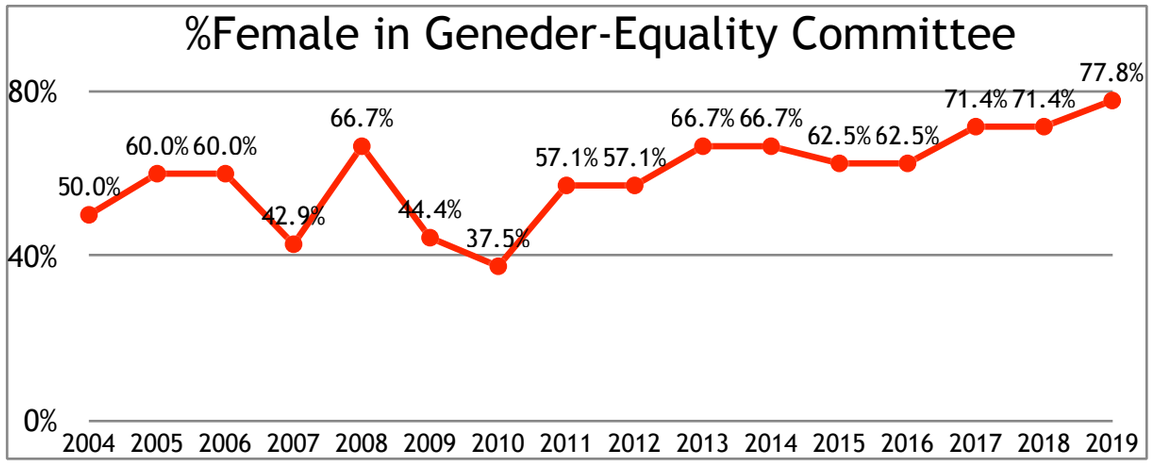
www.djrenrakukai.org

Committee Members

Many women participate in the Committee for the Promotion of a Gender-equal Society. In 2017, there were no women in 11 of the 20 committees established by the MSJ.

The percentage of women in the Committee for the Promotion of Gender Equality Society has been increasing in recent years, and there is a possibility that the division of roles by gender has increased. For the problem of bias and harassment, effort by the whole mathematics community is indispensable.

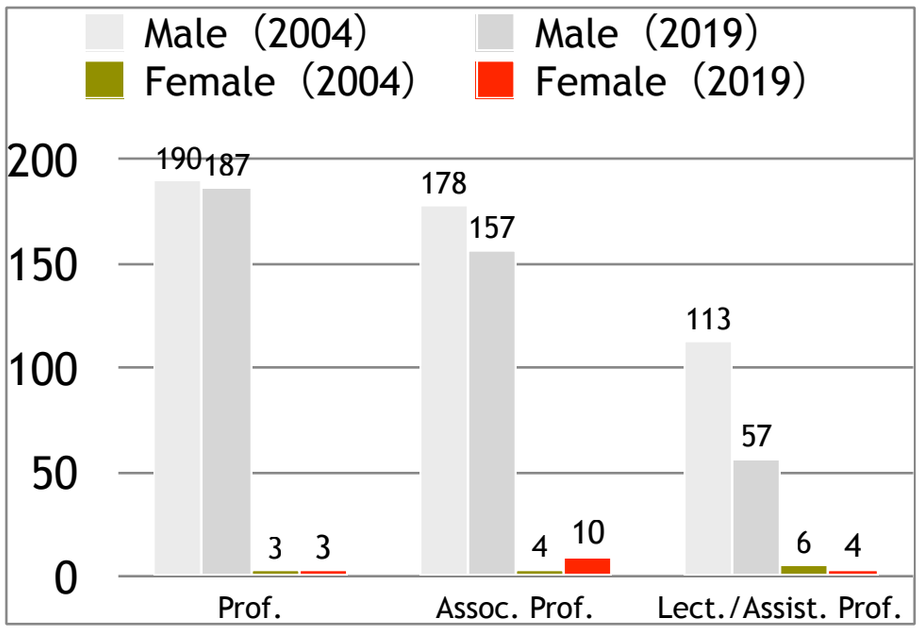
%Female



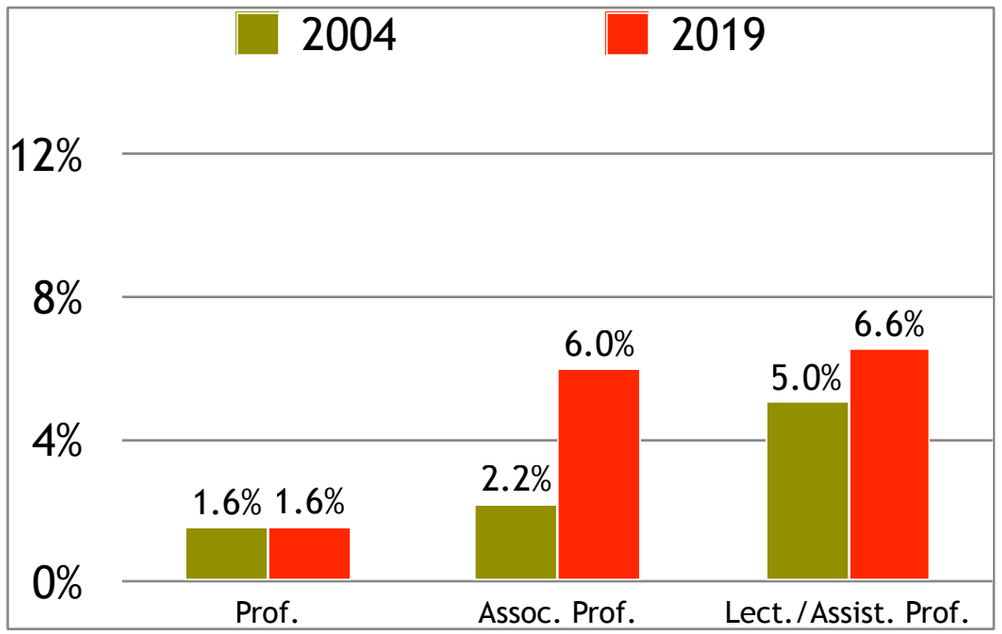
From the webpage of the MSJ

Female Faculty at 10 National U.

Male/Female Faculty



%Female



※Only permanent faculty
Does not include members of affiliated departments

Data for 2004 provided by the MSJ. Data for 2019 obtained by web/phone/email from respective institution

In comparison with the 2004 survey, the percentage of permanent female faculty members in mathematics graduate schools of the 10 national universities (7 Former Imperial Universities, Tokyo Institute of Technology, Tsukuba University, and Hiroshima University) in 2019 remained almost the same for professors (The total number, 3, was the same), while the percentage of permanent female faculty for Associate Professors and Lecturers/Assistant Professors increased. When the number of female faculty members in affiliated departments listed on the website of each graduate school is included, then the number of female professors increases from 3 to 6, and the ratio then becomes about 2.9%.

The percentage of female professors in mathematics in the 6 universities Fudan, Zhejiang, Peking, Tsinghua, Jilin, and Shandong in China in 2016 was 11.4% (30 of 264), it was 13.0% (396 out of 3035) in the U.S. as a whole in 2012, it was 8.5% (60 of 750) in the U.K as a whole, its was 14.8% (185 of 1247) in Germany as a whole in 2014, and it was 6.2% (33 of 530) in pure mathematics in France in 2016. The percentage of female professors in mathematics in Japan is very low compared with these results.

See References [9], [10], [12]

London Mathematical Society

- In 2008, the Board of Directors issued a statement expressing concern that "the loss of women from mathematics" is "a disadvantage and opportunity loss in the development of mathematics". A revised edition was published in 2018 (References [13]). The following causes were pointed out:
  i. The fact that there are fewer women in the mathematics community means that **they are often overlooked when names are sought, for speakers or for prizes**, for instance.
  ii. Those few women who reach the higher levels are disproportionately called on to sit on committees etc., to the detriment of their own careers.
  iii. Women are often called on to take part in **'people-based' activities rather than 'research-based' activities**, to the detriment of their own careers.
  iv. Compared with men, women may be **disadvantaged by societal norms and unconscious bias**.

- This paper collects and analyzes how each university and graduate school in the mathematics field tackles these problems, and introduces good measures to be referred to ([1]). In it, the importance of:

  - **Continue to collect data and keep an eye on trends.**
  - **Strong involvement of the top management of the organization.**

- Providing concrete advice to the facilitators of workshops and seminars to ensure diversity (References [14]). In it, he pointed out the following:
  - **Explicitly reject the "No good women" claim.**

Analysis of the Statistics

Statistical data indicate that (1) the proportion of women is low compared to other countries and areas of the world, (2) the proportion of female winners and invited speakers is lower than the proportion of women in the community, and (3) the percentage of female graduate students is declining.

In countries around the world, lower proportion of female in research is understood to be caused by problems in the research environment for women, such as gender bias (prejudice) and harassment. Various measures are being taken to ensure that the proportion of women is rising. It would be unreasonable to believe that Japan does not have such problems..

(1) In Japan, both mathematicians and the general public seem to think that the reason for this difference from other fields is that "Women don't like (or not suited for) math.". However, in some countries around the world, the percentage of women in mathematics is higher than that of men ([8]), and in other countries, the number of women majoring in mathematics is steadily increasing by combatting issues such as bias, harassment, and compatibility with family life. Therefore, it is itself biased to think that the reason of (1) is that "Women don't like (or not suited for) math," and the fact that parents, teachers, and researchers around them have such bias itself hinders women's interest in mathematics. It is unreasonable to think that "Japanese women" is special, and we believe the reason why there are so few women majoring in mathematics is not a problem concerning "Japanese women," but a problem of “Japanese society" and "Mathematics in Japan".

(2) is known as an indicator of bias.* ([2] [3] [4]) Is it possible to think of the reason for (2) is that "women indeed perform badly"? For strict analysis, we will have to look at the performance of each individual nominee for the award, but there's already a clear bias in the assumption that "Women generally perform less.". It is also necessary to verify whether women are nominated for a certain percentage and are evaluated for their performance. It is also important to increase the diversity of the selection committee in evaluating performance, under the assumption that everyone holds biases. Research on the background of the scarcity of female Nobel laureates is discussed in [9]. As a result of ongoing data collection, training on bias, and addressing bias such as gender bias in the selection committee, the percentage of women in each community at AMS and LMS invitations is no different from the percentage of women in each community, and ICM invitations are certainly moving in that direction

*In addition to awards and invitations, data such as allocation of research funds (gender composition of applicants and admissions officers), recruitment and promotion data (gender composition of applicants and that of those newly hired or promoted), and gender age distribution at promotion are used to examine gender bias. This time, we asked the Japan Society for the Promotion of Science about the gender composition of Kakenhi grants, and they said that there was no data for each field, and we could not verify the data on applicants for recruitment and promotion because it is not available in Japan.

*As for the gender composition of the selection committee of prizes for the MSJ, we could only confirm the members only for the Algebra, Analysis, and Application Mathematics Incentive Awards. In all, there was only one woman, in the committee for the Analysis Award.

Analysis of the「Decrease of Percentage of Women in Graduate School」

Despite a slight increase in the percentage of female members of the Mathematical Society of Japan, the percentage of women in awards and invited lectures has significantly decreased*. This may indicate that gender bias is becoming more influential in mathematics in Japan.

The effects of gender bias and harassment are more serious in the early stages of a career, such as in graduate school, when the aspiring mathematician has less achievement or support. For example, if people say things like, "Women will be fine if they get married," women will feel "not properly appreciated in this field" and their motivation for research will decrease. Such decrease in motivation may be mistaken that "women have low motivation" or "she was not serious from the start". In order to eliminate such biases and harassment that discourage women's motivation from the daily speech and behavior of researchers (Include graduate students), it is necessary for each and every one to continue to learn through training, etc. what will hinder a fair research environment.

The fact that there have only been three female winners of the Mathematical Society's non-young awards since the foundation of the Mathematical Society, and that there have been a total of three female professors at the 10 top national universities in 2004 and 2019 meaning that there are very few female mathematicians who may be regarded as role models for young women. In mathematics, it is assumed that this is a factor that makes people feel that there is a "glass ceiling" and that there has been no sign of change. In terms of compatibility with family life, the lack of role models is thought to increase anxiety about the future.

The impact of harassment on careers in areas such as science and engineering in the United States has been studied in detail in [6]. The situation in Japan cannot be read from this data, but as far as I know from experience, many women in the field of mathematics have had unpleasant experiences due to the words and deeds of researchers (Include graduate students) around them concerning their appearance, love, marriage, childbirth, etc. It is easy to surmise from the results of the survey [6] that this makes it difficult for students to participate in seminars and research meetings, makes it uncomfortable for students in graduate schools and universities, has a negative impact on their studies and research achievements, and even leads them to quit math. It is very important to create an environment where it is difficult for harassment to occur, and to prepare on a daily basis what to do when harassment occurs in you or in your immediate surroundings. Specific methods for investigating the actual situation and implementing measures are described in detail in [6], and it is hoped that these measures will be carried out in an organized manner by Universities and the Mathematical Society of Japan.

Being an overwhelmingly minority in a community already has its own disadvantages, such as being easily isolated and losing confidence that you are suitable for the occasion. It is also important for young researchers such as graduate students to meet diverse researchers and actively provide them with opportunities to learn about the wider world. As a place to meet many role models, workshops for female mathematicians are held all over the world (References [17]). It is also important for the entire field to support the participation of graduate students in these fields and the researchers who host research meetings.

Proposal for Future Gender Equality

- Rather than focusing only on the percentage of women, it is vital to give top priority to "Creating an environment in which anyone with an interest in mathematics will be able to do research without feeling hesitant about studying mathematics because of being a woman and without giving up on studying mathematics because of being a woman"

- Gender equality led by leaders of each organization, involving the mathematical world and the entire graduate school. Various documents from around the world point out that the involvement of organizational leaders is a very important factor. Gender bias and harassment require a systematic response. "Time alone does not change things - deliver action by powerful administrators change institutions" Nancy Hopkins [3]

- Formulation of specific strategies based on statistical data and prior domestic and overseas results, surveys and research. The world has had great success stories, accumulated research, and specific proposals on what kind of data should be collected and what efforts have been effective ([1, 2, 3, 4, 6, 7, 9] , reference materials [16]). For example, when choosing invited speakers for seminars or workshops, it is recommended to create "The too long long list" for candidates (References [14]). There is also a warning that "Do not always invite the same senior women" (References [14]). To combat gender bias, many research institutions require training for personnel committee members, evaluators of research funds, and conference organizers.

- In Japan, the mathematics department at Nara Women's University supports young female researchers, especially those who give birth and raise children. The Chairs article published in the Mathematics Correspondence ([10]) made a number of important points, such as “(maternity). Harassment is more likely to occur in workplaces with limited staff" "importance of workplace atmosphere" and "(parenting) Support for teachers also serves as an education for students watching them." "(Child rearing support) is useful for men as well as women". A number of concrete and effective practices are introduced.

Please join us to create an environment in which
diverse people can enjoy mathematical research.
Let's do our best, together!

Acknowledgement

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10 National Universities in Japan, Newton Institute, Mary Ann Liebert, Inc., AMS Survey, Keio University, Committee for Gender-Equality of the MSJ

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Additional Resources

【1】Graduate Students
【2】Faculty at 10 National Univ.
【3】Prof. at 10 National Univ.
【4】Students at 10 National Univ.
【5】Speakers at the MSJ
【6】Speakers at the MSJ
【7】Prizes/Invited Speakers
【8】AMS/Invited Speakers
【9】Faculty US
【10】Faculty UK/China
【11】UK　Invited Speakers/Prizes/Council
【12】Faculty Germany/France
【13】London Mathematical Society Statement
【14】LMS Advice on Diversity at Conferences and Seminars
【15】Planning for Success: Good Practice in University Science Departments
【16】Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine by the National Academies of Sciences, Engineering, and Medicine in the US

【1】Graduate Students

Recipients of Ph.D.

		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
All	Total	3,259	3,234	3,485	3,762	4,009	4,484	5,007	5,745	6,413	7,292	8,268	8,343	8,988	9,442	10,044	10,598	10,817	11,316	11,720	11,660	11,868	11,532	11,369	11,618	11,900	11,337	11,174	10,759	10,671	10,600
	M	2,828	2,792	2,986	3,184	3,452	3,799	4,202	4,749	5,307	5,892	6,631	6,603	6,924	7,236	7,518	7,958	8,004	8,303	8,634	8,529	8,709	8,278	8,032	8,114	8,271	7,805	7,798	7,429	7,360	7,230
	F	431	442	499	578	557	685	805	996	1,106	1,400	1,637	1,740	2,064	2,206	2,526	2,640	2,813	3,013	3,086	3,131	3,159	3,254	3,337	3,504	3,629	3,532	3,376	3,330	3,311	3,370
	%F	13.2%	13.7%	14.3%	15.4%	13.9%	15.3%	16.1%	17.3%	17.2%	19.2%	19.8%	20.9%	23.0%	23.4%	25.1%	24.9%	26.0%	26.6%	26.3%	26.9%	26.6%	28.2%	29.4%	30.2%	30.5%	31.2%	30.2%	31.0%	31.0%	31.8%
Science	Total	621	594	615	692	728	809	896	949	1,047	1,203	1,339	1,384	1,442	1,544	1,427	1,491	1,375	1,472	1,578	1,482	1,386	1,266	1,177	1,269	1,249	1,248	1,229	1,283	1,297	1,246
	M	570	554	575	637	670	738	805	864	946	1,073	1,166	1,206	1,244	1,319	1,215	1,256	1,136	1,214	1,336	1,219	1,192	1,034	985	1,015	1,011	1,036	1,016	1,051	1,072	1,009
	F	51	40	40	55	58	71	91	85	101	130	173	178	198	225	212	235	239	258	242	263	194	232	192	254	238	212	213	232	225	237
	%F	8.2%	6.7%	6.5%	7.9%	8.0%	8.8%	10.2%	9.0%	9.6%	10.8%	12.9%	12.9%	13.7%	14.6%	14.9%	15.8%	17.4%	17.5%	15.3%	17.7%	14.0%	18.3%	16.3%	20.0%	19.1%	17.0%	17.3%	18.1%	17.3%	19.0%
Math	Total	84	63	62	74	79	69	111	114	144	150	153	199	163	179	146	237	122	158	178	154	183	174	164	154	178	172	155	163	174	150
	M	75	56	57	62	74	64	96	108	133	137	137	183	147	162	130	210	110	146	157	141	166	161	154	135	158	160	138	142	160	141
	F	9	7	5	12	5	5	15	6	11	13	16	16	16	17	16	27	12	12	21	13	17	13	10	19	20	12	17	21	14	9
	%F	10.7%	11.1%	8.1%	16.2%	6.3%	7.2%	13.5%	5.3%	7.6%	8.7%	10.5%	8.0%	9.8%	9.5%	11.0%	11.4%	9.8%	7.6%	11.8%	8.4%	9.3%	7.5%	6.1%	12.3%	11.2%	7.0%	11.0%	12.9%	8.0%	6.0%

Recipients of Masters Degree

		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
All	Total	25,250	25,804	26,815	29,193	32,847	36,581	41,681	47,747	50,430	53,153	52,850	56,038	60,635	65,275	67,412	69,073	71,440	72,531	73,993	73,881	73,811	73,220	74,680	78,711	76,511	73,154	71,301	71,016	71,187	71,446
	M	21,663	22,226	22,771	24,687	27,325	30,179	33,791	38,022	39,415	40,920	40,493	41,963	45,289	48,385	49,154	49,868	51,229	51,536	52,242	51,879	51,939	51,342	52,749	56,331	53,916	51,809	50,328	50,021	49,748	49,698
	F	3,587	3,578	4,044	4,506	5,522	6,402	7,890	9,725	11,015	12,233	12,357	14,075	15,346	16,890	18,258	19,205	20,211	20,995	21,751	22,002	21,872	21,878	21,931	22,380	22,595	21,345	20,973	20,995	21,439	21,748
	%F	14.2%	13.9%	15.1%	15.4%	16.8%	17.5%	18.9%	20.4%	21.8%	23.0%	23.4%	25.1%	25.3%	25.9%	27.1%	27.8%	28.3%	28.9%	29.4%	29.8%	29.6%	29.9%	29.4%	28.4%	29.5%	29.2%	29.4%	29.6%	30.1%	30.4%
Science	Total	2,598	2,805	2,913	3,067	3,327	3,632	4,264	4,887	5,267	5,503	5,251	5,351	5,633	5,741	5,722	5,998	6,194	6,281	6,367	6,266	6,224	6,047	6,115	6,554	6,500	6,347	6,321	6,042	6,185	6,034
	M	2,344	2,520	2,557	2,696	2,895	3,140	3,524	4,101	4,312	4,439	4,299	4,297	4,509	4,506	4,434	4,731	4,829	4,914	4,965	4,876	4,830	4,688	4,846	5,146	5,036	5,043	4,910	4,712	4,841	4,645
	F	254	285	356	371	432	492	740	786	955	1,064	952	1,054	1,124	1,235	1,288	1,267	1,365	1,367	1,402	1,390	1,394	1,359	1,269	1,408	1,464	1,304	1,411	1,330	1,344	1,389
	%F	9.8%	10.2%	12.2%	12.1%	13.0%	13.5%	17.4%	16.1%	18.1%	19.3%	18.1%	19.7%	20.0%	21.5%	22.5%	21.1%	22.0%	21.8%	22.0%	22.2%	22.4%	22.5%	20.8%	21.5%	22.5%	20.5%	22.3%	22.0%	21.7%	23.0%
Math	Total	352	379	385	400	455	541	689	884	975	1,036	918	929	928	938	1,011	1,120	972	1,068	1,005	1,125	1,036	993	944	1,040	1,104	1,059	956	995	956	834
	M	316	341	339	353	399	495	598	764	813	886	804	797	799	806	855	943	843	902	857	974	918	885	821	912	988	949	824	879	843	729
	F	36	38	46	47	56	46	91	120	162	150	114	132	129	132	156	177	129	166	148	151	118	108	123	128	116	110	132	116	113	105
	%F	10.2%	10.0%	11.9%	11.8%	12.3%	8.5%	13.2%	13.6%	16.6%	14.5%	12.4%	14.2%	13.9%	14.1%	15.4%	15.8%	13.3%	15.5%	14.7%	13.4%	11.4%	10.9%	13.0%	12.3%	10.5%	10.4%	13.8%	11.7%	11.8%	12.6%

※Mathematics includes such fields as Pure and Applied Mathematics, Statistics, Informatics and Data Science.
Science coincides with the fields of Mathematics, Physics, Chemistry, Biology, Geology and Nuclear Science

*Data from www.e-stat.go.jp,

【2】Faculty at 10 National U

Faculty at 10 National U（Tenured Faculty・Does not included Affiliate Members）

		Professor				Associate Professor				L+AP				Lecturer				Assistant Professor				合計			
		M	F	Tot	%F	M	F	Tot	%F	M	F	Tot	%F	M	F	Tot	%F	M	F	Tot	%F	M	F	Tot	%F
Hokkaido	GS of Science, Dept. of Math.																								5.7%
Tohoku	GS of Science, Dept. of Math.																								0.0%
Tsukuba	GS of P&A Sci, Dept. of Math.																								6.7%
Tokyo	Grad. School of Math																								8.5%
Tokyo Tech	GS of Science, Dept. of Math.																								3.6%
Nagoya	Grad. School of Math																								4.0%
Kyoto	GS of Science, Dept. of Math.																								0.0%
	RIMS																								0.0%
Hiroshima	GS of Science, Dept. of Math.																								0.0%
Osaka	GS of Science, Dept. of Math.																								5.1%
Kyushu	Grad. School of Math																								3.3%
	Math for Industry																								10.5%
Total		187	3	190	1.6%	157	10	167	6.0%	57	4	61	6.6%	11	1	12	8.3%	46	3	49	6.1%	401	17	418	4.1%

Information of Nagoya University obtained from statistics given online by Nagoya University
Other Information obtained via direct contact with each department, September 2019
L+AP is the sum of Lecturer and Assistant Professor
Data from individual ranks within universities are not shown on current version for privacy reasons

On the websites of many of the departments, members of affiliate departments are also shown.
If we include affiliate members, then the number of female professors at Tohoku University, Osaka University, and Tokyo University each increase by one. If we include such numbers, then the total number of female professors become 6, and the percentage of female professors become 2.9% (see next page).

【3】 Professors at 10 National U.

Professors Listed on Departmental Webpage

		Professors			
		Male	Female	Total	%Female
Hokkaido	GS of Science, Dept. of Math.				5.6%
Tohoku	GS of Science, Dept. of Math.				5.9%
Tsukuba	GS of P&A Sci, Dept. of Math.				0.0%
Tokyo	Grad. School of Math				6.9%
Tokyo Tech	GS of Science, Dept. of Math.				0.0%
Nagoya	Grad. School of Math				0.0%
Kyoto	GS of Science, Dept. of Math.				0.0%
	RIMS				0.0%
Hiroshima	GS of Science, Dept. of Math.				4.5%
Osaka	GS of Science, Dept. of Math.				0.0%
Kyushu	Grad. School of Math/ Math for Industry				3.0%
Total		203	6	209	2.9%

Information collected from departmental webpage, September 2019. On the websites of many of the departments, members of affiliate departments are also shown. If we include affiliate members, then the number of female professors at Tohoku University, Osaka University, and Tokyo University each increase by one. If we include such data then the total number of female professors become 6, and the percentage of female professors become 2.9% (see next page).

Detailed data from individual universities are not shown on current version for privacy reasons

【4】 Students at 10 National U.

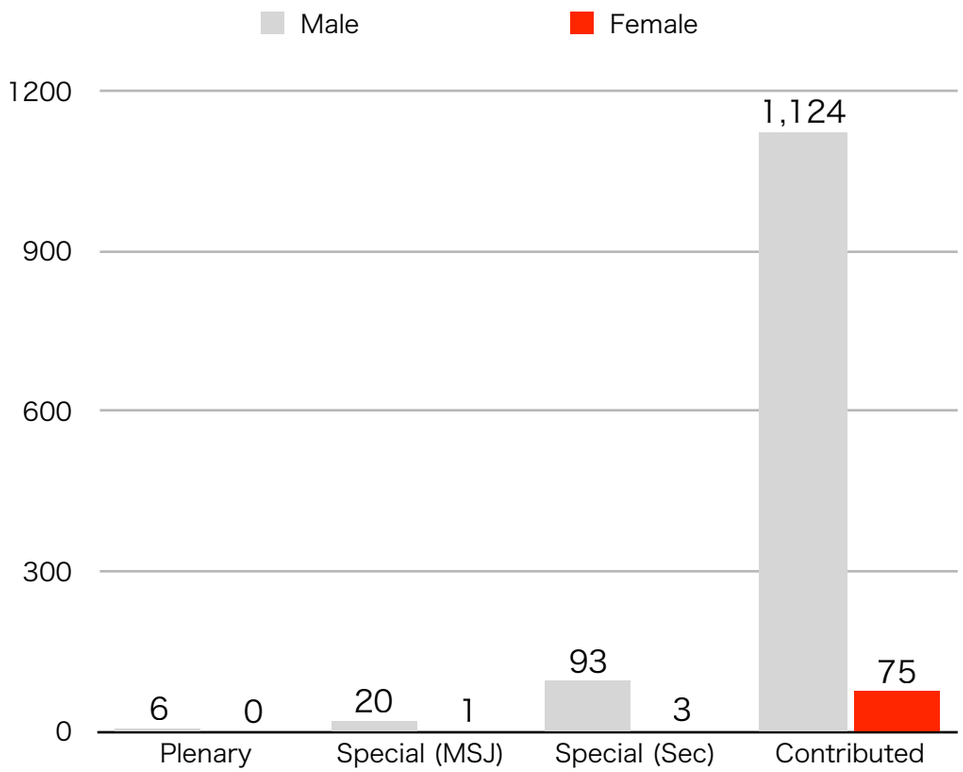
		Masters Student				Ph.D. Students				Total			
		M	F	Total	%F	M	F	Total	%F	M	F	Total	%F
Hokkaido	GS of Science, Dept. of Math.												
Tohoku	GS of Science, Dept. of Math.												
Tsukuba	GS of Science, Dept. of Math.												
Tokyo	Grad. School of Math												
Tokyo Tech	GS of Science, Dept. of Math.												
Nagoya	Grad. School of Math												
Kyoto	GS of Science, Dept. of Math.												
	RIMS												
Hiroshima	GS of Science, Dept. of Math.												
Osaka	GS of Science, Dept. of Math.												
Kyushu	Grad. School of Math												
Total		739	40	779	5.1%	354	13	367	3.5%	1093	53	1146	4.6%

Information of Nagoya University obtained from statistics given online by Nagoya University
Other Information obtained via direct contact with each department, September 2019

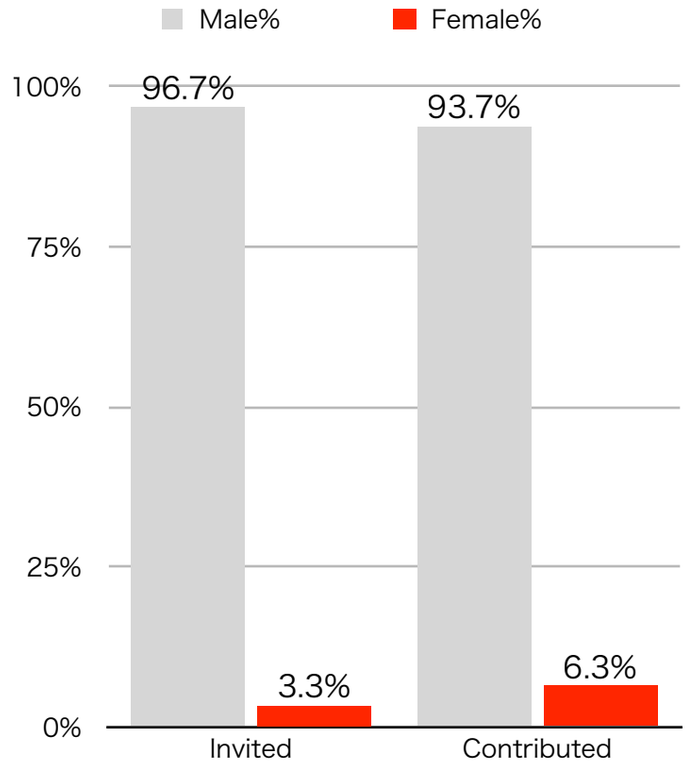
Detailed data from individual universities are not shown on current version for privacy reasons

【5】Talks at the MSJ

Total Fall 2018~Spring 2019



Total Number of Speakers



%M and %F

Provided by the Committee for Gender-Equality of the MSJ

The percentage of women giving invited lectures (by recommendation) for the Fall 2018, Spring 2019 and Fall 2019 conferences was 3.3% (4 people). However, the percentage of women giving contributed lectures (by application) was 6.3% (Fall 2018 @ Okayama University 6.5%, Spring 2019 @ Tokyo Institute of Technology 7.6%, Fall 2019 @ Kanazawa University 4.7%), which is closer to the percentage of women 7.2% in the MSJ. More recent data has not yet been compiled by the MSJ

【6】Speakers at the MSJ

Fall 2018 Okayama

	Plenary	Special (MSJ)	Special (Sections)	Citizens	Total Invited	Contributed	Total
Male	2	7	31	2	42	362	404
Female	0	0	1	0	1	25	26
Total	2	7	32	2	43	387	430
Male%	100%	100%	97%	100%	98%	94%	94%
Female%	0.0%	0.0%	3.1%	0.0%	2.3%	6.5%	6.0%

Spring 2019 Tokyo Tech

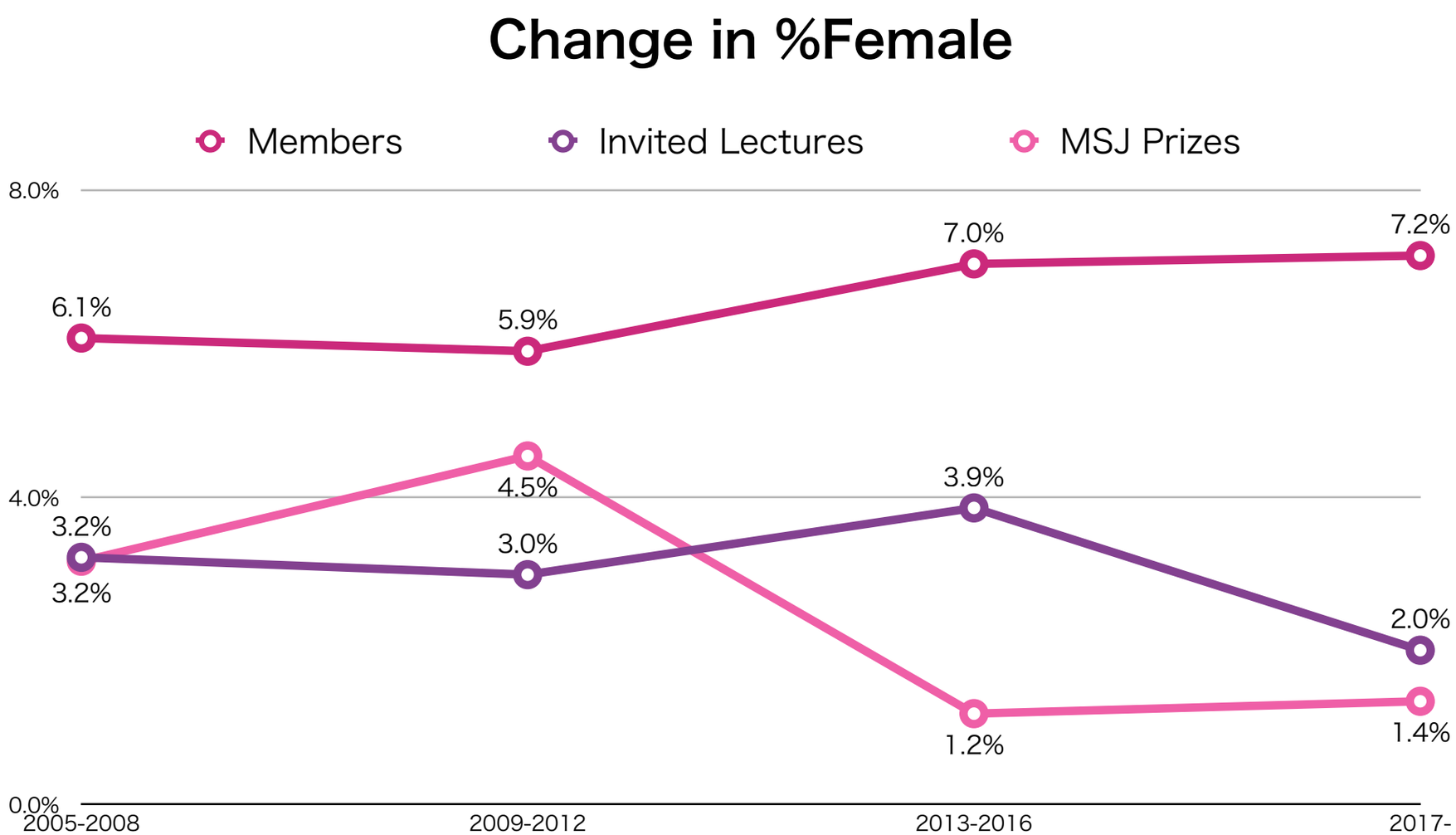
	Plenary	Special (MSJ)	Special (Sections)	Citizens	Total Invited	Contributed	Total
Male	2	6	31	2	41	378	419
Female	0	1	1	0	2	31	33
Total	2	7	32	2	43	409	452
Male%	100%	86%	97%	100%	95%	92%	93%
Female%	0.0%	14.3%	3.1%	0.0%	4.7%	7.6%	7.3%

Fall 2019 Kanazawa

	Plenary	Special (MSJ)	Special (Sections)	Citizens	Total Invited	Contributed	Total
Male	2	7	31	2	42	384	426
Female	0	0	1	0	1	19	20
Total	2	7	32	2	43	403	446
Male%	100%	100%	97%	100%	98%	95%	96%
Female%	0.0%	0.0%	3.1%	0.0%	2.3%	4.7%	4.5%

Provided by the Committee for Gender-Equality of the MSJ

【7】MSJ Prizes/Invited Speakers



Gender deduced from name. Ambiguous names were searched via personal or departmental webpage.
Average for every four years.

If we look at %Female in Prizes and Invited Lectures, there is a decrease in a period after 2005. If we look at the four year average, then the percentage of women for both prizes and invited lectures are less than the %Female Members in each period.

【8】 AMS Invited Speakers

FROM THE AMS SECRETARY

Statistics on Women Mathematicians

Compiled by the AMS

At its August 1985 meeting the Council of the AMS approved a motion to regularly assemble and report in the *Notices* information on the relative numbers of men versus women in at least the following categories: membership in the AMS, invited hour addresses at AMS meetings, speakers at Special Sessions at AMS meetings, percentage of women speakers in AMS Special Sessions by gender of organizers, and members of editorial boards of AMS journals.

It was subsequently decided that this information would be gathered by determining the gender of the individuals in the above categories based on name identification if no other means was available and that additional information on the number of PhDs granted to women would also be collected using the AMS-ASA-IMS-MAA-SIAM Annual Survey. Since name identification was used, the information for some categories necessitated the use of three classifications:

Male: names that were obviously male

Female: names that were obviously female

Unknown: names that could not be identified as clearly male or female (e.g., only initials given, non-gender-specific names, etc.)

The following is the thirty-first reporting of this information. Updated reports will appear annually in the *Notices*.

Invited Hour Address Speakers at AMS Meetings (2007–2016)

Male:	333	80%
Female:	82	20%
Unknown:	0	0%
Total:	415	

Speakers at Special Sessions at AMS Meetings (2012–2016)

Male:	13,267	75%
Female:	3,774	21%
Unknown:	677	4%
Total:	17,718	

Percentage of Women Speakers in AMS Special Sessions by Gender of Organizers (2016)

Special Sessions with at Least One Woman Organizer

Male:	1,034	63%
Female:	407	25%
Unknown:	190	12%
Total:	1,631	

Special Sessions with No Women Organizers

Male:	1,354	69%
Female:	347	18%
Unknown:	249	13%
Total:	1,950	

Trustees and Council Members

	2016		2015		2014		2013	
Male:	26	62%	23	55%	23	56%	23	62%
Female:	16	38%	19	45%	18	44%	14	38%
Total:	42		42		41		37	

2016 Members of the AMS Residing in the US

Male:	8,966	40%
Female:	1,699	8%
Unknown:	11,848	53%
Total:	22,513	

Members of AMS Editorial Committees

	2016		2015		2014		2013		2012		2011		2010		2009		2008		2007	
Male:	161	80%	173	80%	179	81%	182	82%	178	83%	176	83%	176	82%	178	84%	168	83%	194	84%
Female:	41	20%	73	20%	43	19%	40	18%	37	17%	37	17%	39	18%	34	16%	35	17%	36	16%
Total:	202		216		222		222		215		213		215		212		203		230	

PhDs Granted to US Citizens

	2016		2015		2014		2013		2012		2011		2010		2009		2008		2007	
Male:	683	73%	636	72%	664	72%	627	73%	621	72%	574	72%	564	71%	515	69%	431	69%	396	69%
Female:	249	27%	244	28%	256	28%	230	27%	242	28%	228	28%	225	28%	227	31%	191	31%	180	31%
Total:	934		880		920		857		863		802		790		742		622		576	

【9】 Faculty, U.S.A.

Annual Survey of the Mathematical Sciences

Sponsored by AMS - ASA - IMS - MAA- SIAM

www.ams.org/annual-survey

2016 DEPARTMENTAL PROFILE REPORT

FACULTY SIZE SUMMARY

Note: All figures are projected values.

Math Public Large - 26 Departments

25 (inc. 8 imputed)/26 projected

	Fall 2016						
	with PhD			no PhD			
	Male	Female	Other	Male	Female	Other	Total
Full-time (excludes visitors)	1777	416	0	52	50	0	2295
Tenured Full Prof	865	100	0	0	0	0	965
Tenured Other	188	52	0	0	0	0	240
Untenured, tenure-eligible	139	45	0	0	0	0	184
Non-tenure-track	585	219	0	52	50	0	906
Postdoc appointments	359	103	0				462
Renewable	207	107	0	47	46	0	407
Fixed-Term	16	6	0	5	4	0	31
Other	3	3	0	0	0	0	6
Visitors	49	18	0	1	0	0	68
Part-time	75	37	0	62	42	0	216
With Benefits	49	28	0	46	31	0	154
Other Part-time	20	8	0	16	11	0	55
Phased Retirements	6	1	0	0	0	0	7
Full-time teaching courses	Total only						
Outside Math Sci	25						
Comp Sci Only	5						

Math Public Medium - 40 Departments

40 (inc. 5 imputed)/40 projected

	Fall 2016						
	with PhD			no PhD			
	Male	Female	Other	Male	Female	Other	Total
Full-time (excludes visitors)	1509	407	0	81	133	0	2130
Tenured Full Prof	704	76	0	0	0	0	780
Tenured Other	233	64	0	0	1	0	298
Untenured, tenure-eligible	197	77	0	0	0	0	274
Non-tenure-track	375	190	0	81	132	0	778
Postdoc appointments	195	51	0				246
Renewable	129	110	0	64	112	0	415
Fixed-Term	47	26	0	13	20	0	106
Other	4	3	0	4	0	0	11
Visitors	26	8	0	5	0	0	39
Part-time	99	45	0	135	115	0	394
With Benefits	33	18	0	54	45	0	150
Other Part-time	47	25	0	76	70	0	218
Phased Retirements	19	2	0	5	0	0	26
Full-time teaching courses	Total only						
Outside Math Sci	52						
Comp Sci Only	1						

Math Public Small - 64 Departments

58 (inc. 9 imputed)/64 projected

	Fall 2016						
	with PhD			no PhD			
	Male	Female	Other	Male	Female	Other	**Total**
Full-time (excludes visitors)	1534	494	0	156	239	0	2423
Tenured Full Prof	689	133	0	1	1	0	824
Tenured Other	341	124	0	2	2	0	469
Untenured, tenure-eligible	249	97	0	0	0	0	346
Non-tenure-track	255	140	0	153	236	0	784
Postdoc appointments	84	20	0				104
Renewable	139	109	0	141	209	0	598
Fixed-Term	23	6	0	7	16	0	52
Other	9	5	0	5	11	0	30
Visitors	30	9	0	0	0	0	39
Part-time	106	49	0	151	152	0	458
With Benefits	27	14	0	50	51	0	142
Other Part-time	69	35	0	101	101	0	306
Phased Retirements	10	0	0	0	0	0	10
Full-time teaching courses	Total Only						
Outside Math Sci	52						
Comp Sci Only	11						

Math Private Large - 24 Departments

22 (inc. 2 imputed) /24 projected

	Fall 2016						
	with PhD			no PhD			
	Male	Female	Other	Male	Female	Other	Total
Full-time (excludes visitors)	968	167	0	5	3	0	1143
Tenured Full Prof	457	51	0	0	0	0	508
Tenured Other	47	9	0	0	0	0	56
Untenured, tenure-eligible	78	18	0	0	0	0	96
Non-tenure-track	386	89	0	5	3	0	483
Postdoc appointments	270	47	0				317
Renewable	71	26	0	2	0	0	99
Fixed-Term	43	14	0	3	3	0	63
Other	2	2	0	0	0	0	4
Visitors	25	6	0	2	0	0	33
Part-time	50	12	0	12	2	0	76
With Benefits	9	1	0	4	0	0	14
Other Part-time	33	11	0	8	2	0	54
Phased Retirements	8	0	0	0	0	0	8
Full-time teaching courses	Total only						
Outside Math Sci	17						
Comp Sci Only	13						

Math Private Small - 29 Departments

26 (inc. 6 imputed)/29 projected

	Fall 2016						
	with PhD			no PhD			
	Male	Female	Other	Male	Female	Other	Total
Full-time (excludes visitors)	651	162	0	21	25	0	859
Tenured Full Prof	320	36	0	0	0	0	356
Tenured Other	94	30	0	0	0	0	124
Untenured, tenure-eligible	84	27	0	0	0	0	111
Non-tenure-track	153	69	0	21	25	0	268
Postdoc appointments	54	21	0				75
Renewable	70	36	0	20	23	0	149
Fixed-Term	29	12	0	1	2	0	44
Other	0	0	0	0	0	0	0
Visitors	21	3	0	0	0	0	24
Part-time	56	20	0	32	32	0	140
With Benefits	20	10	0	5	8	0	43
Other Part-time	30	10	0	27	24	0	91
Phased Retirements	6	0	0	0	0	0	6
Full-time teaching courses	Total only						
Outside Math Sci	31						
Comp Sci Only	9						

【10】 Faculty Great Britain/China

This data pack was produced by TBR to help the London Mathematical Society update the analysis in their February 2013 report *Advancing Women in Mathematics: Good Practice in UK University Departments*.

LONDON MATHEMATICAL SOCIETY EST. 1865

GOOD PRACTICE SCHEME

Gender in Mathematics data update
January 2016

Cost Centre	Type of Academic Contract	2011/12			2012/13			2013/14			2014/15		
		Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
Mathematics	Professors	50	670	720	50	625	675	60	645	710	60	645	705
	Senior lecturers/lecturers	395	1,365	1,760	450	1,545	1,995	490	1,645	2,135	520	1,700	2,220
	Researchers	145	550	695	185	605	790	195	660	855	195	660	850
	Other grades	0	5	5	5	10	15	0	5	5	5	10	15
	Not applicable/Not required (Default code)	35	70	100	~	~	~	~	~	~	~	~	~
	Total	630	2,655	3,285	690	2,780	3,470	750	2,955	3,705	780	3,015	3,795

2011/12			2012/13			2013/14			2014/15		
Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
7%	93%	100%	7%	93%	100%	9%	91%	100%	9%	91%	100%
23%	77%	100%	23%	77%	100%	23%	77%	100%	23%	77%	100%
21%	79%	100%	23%	77%	100%	23%	77%	100%	23%	77%	100%
40%	60%	100%	45%	55%	100%	37%	63%	100%	31%	69%	100%
33%	67%	100%	~	~	~	~	~	~	~	~	~
19%	81%	100%	20%	80%	100%	20%	80%	100%	21%	79%	100%

https://www.lms.ac.uk/sites/lms.ac.uk/files/Benchmarking%20Data%20Updated%20for%202011-2015%20April%202016_0.pdf

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In Chinese universities, the female teachers engaged in teaching and researches are about 45.5% of the total, but the proportions are variable from one university to the other. Among them, **the professors (senior) account for 28.4%, the associate professors (sub-senior) 43.6%, and the lecturers (middle) 51.9%.** The female teachers who work on Mathematical research are fewer. We did a survey about the number of teaching and research faculty of **the department of mathematics in Fudan University, Zhejiang University, Peking University, Tsinghua University, Jilin University and Shandong University.** The total number of teaching and research staff in this survey is 651, among which there are 139 women, which takes 21.35% of the total. **There are 264 professors (senior), 30 are female, this number account for 11.36% of the total; the number of associate professors (sub-senior) is 230, including 57 female members, accounting for 24.78%, the number of lecturers (middle) is 157, including 52 female members, accounting for 33.12%.**

The 2012 situation in China is reported by the "Working Committee for Women in Mathematics of the Chinese Mathematical Society" in the IMU email newsletter that appears here:
https://www.mathunion.org/fileadmin/CWM/By%20country/IMU-Net%2061_%20September%202013.htm

【11】 Great Britain Colloquium/Prizes/Council

British Mathematical Colloquium 2019 invited speakers (female/total):

Plenary (inc Public): 3/7
Morning: 5/9
Algebra: 3/7
Geometry: 3/7
Analysis: 2/7
Probability: 1/4
Combinatorics: 3/7
Mathematics Education: 1/6

TOTAL: 21/54=39%

Data collated from: https://www.lancaster.ac.uk/maths/bmc2019/

British Mathematical Colloquium 2018 invited speakers (female/total):

Plenary (inc Public): 4/7
Morning: 3/12
Algebra: 4/8
Analysis/Probability: 2/8
Combinatorics: 3/8
Dynamics: 2/8
History of mathematics: 4/8

TOTAL: 22/59=37%

Data collated from: http://www.mcs.st-and.ac.uk/~bmc2018/

LMS Prize Winners (female/total):
2019: 1/11
2018: 4/11
2017: 2/11
2016: 2/9
2015: 2/17

TOTAL: 11/59=19%

Data collated from :
https://www.lms.ac.uk/prizes/2019-nominations-lms-prizes
https://www.lms.ac.uk/news-entry/29062018-1745/2018-lms-prize-winners
https://www.lms.ac.uk/news-entry/30062017-1833/lms-prizes-2017
https://www.lms.ac.uk/prizes/2016-nominations-lms-prizes
https://www.lms.ac.uk/prizes/citations-lms-prize-winners

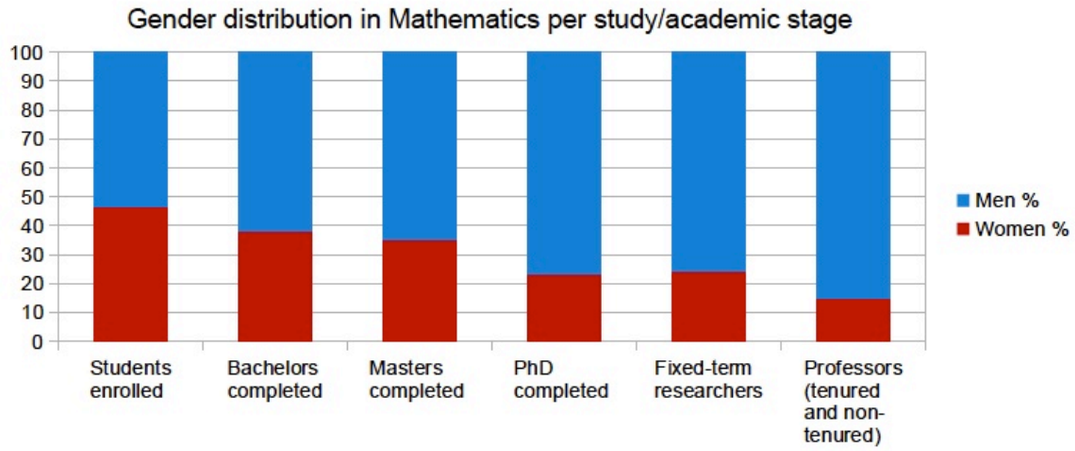
Current membership of the LMS council (which is the most important governance body of the LMS, female/total):
LMS Council Officers: 2/8
LMS Council Members-at-Large (i.e. other members): 6/12
TOTAL: 8/20=40%

Data collated from :
https://www.lms.ac.uk/about/council

【12】 Germany/France

Distribution of Women in Maths in 2014 per study/academic career stage

	Total	Women	Percentage
Students enrolled	33728	72391	46.6
Bachelors completed	2665	1020	38.2
Masters completed	1117	395	35.4
PhD completed	562	132	23.5
Fixed-term researchers (e.g. postdocs, fixed-term lecturer)	3697	905	24.5
Professors (tenured and non)	1247	185	14.8



German Data obtained from IWOTA 2016 presentation by M. Infusino

EVOLUTION IN TIME

in fundamental mathematics (or pure mathematics) FRANCE

1996	MEN	WOMEN	TOTAL	% WOMEN
Assistant Prof.	629	205	834	25%
Full Prof.	523	50	573	9%

2016	MEN	WOMEN	TOTAL	% WOMEN
Assistant Prof.	701	156	857	18%
Full Prof.	497	33	530	6%

French Data obtained from IWOTA 2016 presentation by I. Chalendar

【13】London Mathematical Society Statement

LONDON MATHEMATICAL SOCIETY
EST. 1865

Council Statement on Women in Mathematics

1. The London Mathematical Society is concerned about the loss of women from mathematics, particularly at the higher levels of research and teaching, and at the disadvantages and missed opportunities that this represents for the advancement of mathematics. This can occur for several reasons: □ Women are more likely to have had broken career patterns or worked part time on account of child-rearing and family responsibilities.
    i. The fact that there are fewer women in the mathematics community means that they are often overlooked when names are sought, for speakers or for prizes, for instance.
    ii. Those few women who reach the higher levels are disproportionately called on to sit on committees etc., to the detriment of their own careers.
    iii. Women are often called on to take part in 'people-based' activities rather than 'research-based' activities, to the detriment of their own careers.
    iv. Compared with men, women may be disadvantaged by societal norms and unconscious bias.

2. The Society recognises the need to give active consideration to ensuring that everybody is treated equally in their prospects, recognition and progression. The formulation and regulation of procedures should give adequate attention to the needs of all.

Data obtained from
https://www.lms.ac.uk/sites/lms.ac.uk/files/files/Council%20Statment%20on%20Women%20in%20Mathematics.pdf

【13】London Mathematical Society Statement

3. Accordingly, the Society will:

   a. be aware of and seek to ensure an appropriate gender balance on its committees and working groups, and encourage the Nominating Committee to give similar attention in its proposals for election;
   b. keep under review the regulations governing its membership, prizes, awards and grants to ensure that they do not inadvertently deter or fail to recognize people with non-standard career patterns;
   c. actively encourage and facilitate the nomination of women for its prizes and awards, and ensure that it considers women when it is proposing nominees for external prizes and positions;
   d. actively seek to include women speakers in its meetings and workshops;
   e. expect that the conferences and activities funded by the Society will have an appropriate gender balance among speakers. Consideration should be given to mechanisms to enable participation by people with children or family responsibilities;
   f. collect data and thereby monitor trends in the above.

Approved by Council, 20 March 2008
Revisions approved by Council 19 October 2018

Data obtained from
https://www.lms.ac.uk/sites/lms.ac.uk/files/files/Council%20Statment%20on%20Women%20in%20Mathematics.pdf

【14】LMS Advice on Diversity at Conferences and Seminars

LMS ADVICE ON DIVERSITY AT CONFERENCES AND SEMINARS

Philosophy. Diversity has many forms. These include, but are not limited to, gender, race and ethnicity, age, geographic location, and mathematical school. The health of mathematics relies on most conferences/seminars/workshops allowing mathematicians with different mathematical perspectives to mingle.

Best practices in considering diversity will deal with all of these at once. Measurable attributes such as gender or age often serve as the “canary in the coal mine" for less obvious forms of insularity that may have an even more immediate negative impact on the mathematics of the conference. For brevity, we will often refer to women below, but the guidelines apply to other underrepresented groups.

Data obtained from
https://www.lms.ac.uk/adviceondiversityatconferencesandseminars

【14】LMS Advice on Diversity at Conferences and Seminars

Specific suggestions.

- **The too long long list.** Come up with a list in the usual way, whatever that means in the context of your event. If the list isn't representative of the full diversity of mathematicians, then ask each member of the organising committee to come up with some mathematicians in the underrepresented group(s). The result will be a long and diverse list of suitable invitees. Choose your short list from this long list. You may find this process results in an “over-representation" of the underrepresented group. That is okay.
- **Broaden your base.** Think more broadly about the field from which you're recruiting: are there mathematicians working in other fields with overlapping interests? Also, young mathematicians are often a good source for finding a diverse group of speakers (with a caveat; see next bullet point).
- **Do not always invite the same senior women.** Conversely, don't have a list of eighteen senior men and two young women.
- **Question reasonable-sounding assumptions.** This can over-determine the situation. For example, if you say “we had a pure speaker last year, so they must be applied, and they were from the US last year, so they must be European" then you've cut your pool to a quarter of its original size, which may be less representative.
- **Look at the big picture.** Look at data for the last *N* years, or look at conferences your target audience has been to recently, for a one-off event. For example, if for each of the last five years, the keynote speaker for your general audience event was a pure mathematician, then applied mathematicians become one of the underrepresented groups for the “too long list".
- **Explicitly reject the “no good women" claim.** See the bullet points above for ways of generating lists of suitable women. If the specific suggestions in this document have not been helpful, there are many other resources available, and it is worth searching online for further guidelines and suggestions.

Approved by Council, 10 November 2017

Data obtained from
https://www.lms.ac.uk/adviceondiversityatconferencesandseminars

【15】Planning for Success: Good Practice in University Science Departments

Key Findings

1. Good practice benefits all, staff and students, men and women. However, bad practice adversely affects women's careers more than men's.
2. The best departments don't target measures specifically at women because improved working conditions benefit all and make for a happy department: good practice isn't about how many women are in the department, it's about processes that are fair, flexible, accessible and transparent to all.
3. Good practice departments appear able to attract and retain women far better than other departments.
4. There is no evidence that the introduction of good practices adversely affects the excellence of the science carried out. Good practice equates with good science. In contrast the detrimental effects of bad practice build up incrementally over the course of a career resulting in a smaller proportion of women than men reaching their full potential.
5. Leadership from the top, with the Head of Department acting as champion, is critical to changing culture, to making the changes stick, and to changing behaviour. Simple changes to processes, which deliver clear benefits to staff, can start to change policy and behaviour, but without a Head of Department prepared to introduce changes and monitor adherence, little will be different in the medium and longer term.
6. The age profile of the department, and the diversity of its staff, makes a difference. Young men and women with families have different expectations and needs from their older colleagues. The careers of younger staff (and their science) cannot thrive unless the working culture of the department reflects the reality of dual career partnerships.
7. Successful action is based on good planning, which takes account of the department's academic plan and which is based on evidence.

Data obtained from
https://www.rsc.org/globalassets/02-about-us/our-strategy/diversity-community-hub/2008-planning-for-success_good-practice-in-university-science-departments.pdf

Advancing Women in Mathematics : Good Practice in UK University Departments [1] に同じ内容が引用されている

【16】SEXUAL HARASSMENT OF WOMEN: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine

RECOMMENDATION 1: Create diverse, inclusive, and respectful environments.

RECOMMENDATION 2: Address the most common form of sexual harassment: gender harassment.

RECOMMENDATION 3: Move beyond legal compliance to address culture and climate.

RECOMMENDATION 4: Improve transparency and accountability.

RECOMMENDATION 5: Diffuse the hierarchical and dependent relationship between trainees and faculty.

RECOMMENDATION 6: Provide support for the target.

RECOMMENDATION 7: Strive for strong and diverse leadership.

RECOMMENDATION 8: Measure progress.

RECOMMENDATION 9: Incentivize change.

RECOMMENDATION 10: Encourage involvement of professional societies and other organizations.

RECOMMENDATION 11: Initiate legislative action.

RECOMMENDATION 12: Address the failures to meaningfully enforce Title VII's prohibition on sex discrimination.

RECOMMENDATION 13: Increase federal agency action and collabopercentagen.

RECOMMENDATION 14: Conduct necessary research.

RECOMMENDATION 15: Make the entire academic community responsible for reducing and preventing sexual harassment.

参考文献[６]の summary の中のタイトルの抜粋