

# Consolidated Report of the Gender Champion on the triennium 2015, 2016 and 2017.

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The IUPAP 27th General Assembly, London, UK, 2-4 November 2011, has among its resolutions: That IUPAP will appoint a gender champion from the Executive Council. A Vice-President will act as gender champion. The chair, or other representative, of the Women in Physics Group is requested to liaise with the Gender Champion.

The role of the Gender Champion is to verify, year by year, the number of female participants, female invited speakers, and female members of Organizing/Advisory Committees of IUPAP sponsored Conferences.

## Year 2015 (until October 2015):

In 2015, the number of conferences that received IUPAP sponsorship was 31. From these 31 conferences, we could gather partial information on 21.

The relevant information from the Gender Champion's point of view is:

Number of women attendees/ total number of attendees, in percentage: mean value is 18 (2) %, and varies between 8% and 50%, with 5 conferences where this value is below 10%, 9 conferences between 10% and 20% and 6 conferences with value larger than 20%.

Number of female invited speakers/ total number of invited speakers, in percentage: mean value is 14.5 (2) %, and varies between 4% and 27%, with 7 conferences where this value is below 10%, 10 conferences between 10% and 20% and 4 conferences with value larger or equal to 20%.

Number of female members of international organizing committee/ total number of members of international organizing committee, in percentage: mean value is 16 (2) %, and varies between 0% and 39%, with 6 conferences where this value is below 10%, 9 conferences between 10% and 20% and 6 conferences with value larger than 20%.

These numbers are quite similar and with a few exceptions, there is a clear correlation between them. Examples with the lowest numbers : “Advances in non-equilibrium statistical mechanics” (C3): 8.2%, 8.3%, 0% realized Florence, Italy with no female members in the organizing committee, or the “13th international symposium on Origin of Matter and Evolution of Galaxies (OMEG2015)”(C12): 10%, 5% and 4.5%, realized in Beijing, China.

Examples with the highest numbers are: “XI Latin-American Symposium on Nuclear Physics and Applications (LASNPA 2015)” (C12) with 33,5% of female attendees, 20,3% of female invited speakers and 28% of female members in the organizing/advisory committee. Or “21st International Conference on Few-body

Problems in Physics” (C12), with 16 % of female attendees, 27% of female invited speakers and 25,5% of female members in the organizing/advisory committee. Or even “The 12th International Conference on Nucleus-Nucleus Collisions”(C12) with 24 % of female attendees, 21% of female invited speakers and 8.5% of female members in the organizing/advisory committee. All three were recommended by the Commission on Nuclear Physics C12. The International Conference on Physics Education held in Beijing, China, and the International Cosmic Ray Conference also show good numbers, above 20%.

There are also examples where, although presenting a good number of female presence in the organizing committee (22%) and among the attendees (19%), these do not guarantee a good proportion of female invited speakers, which is low (9 %). This happened at the “International Conference on Phenomena in Ionized Gases” (C16), realized in Iasi, Romania. Or the “Astroparticle Physics, a joint TeVPA/IDM” (C4) conference in Amsterdam, Holland, where 24, 5% of the attendees were women, 17.5% of the organizing committee were women and only 3,7% of the invited speakers were women.

### **Year 2016 (from October 2015-October 2016)**

In the period October 2015 and October 2016 the number of conferences that received IUPAP sponsorship, is 41. From these 41 conferences, we could gather partial information on 17, until the C&CC meeting in October 2016. Now, after some insistence, we received 35 reports.

The relevant information from the Gender Champion’s point of view are:

Number of women attendees/ total number of attendees, in percentage: mean value is 19 (1,5) % (was 17 (2) % in 2015), and varies between 5 % and 52%. Only 3 conferences where this value is below 10%, 19 conferences between 10% and 20% and 13 conferences with value larger than 20. The average values are similar after increasing the statistics from 17 to 35 conferences.

Number of female invited speakers/total number of invited speakers, in percentage: mean value is 19 (2,7) % (this number was 14,5 (2) % in 2015). It varies between 2 % and 64% (a conference on physics education in Brazil). There are 6 conferences where this value is below 10%, 16 conferences between 10% and 20% and 11 conferences with value larger or equal to 20%. Here, one can see some improvement when compared to 2015.

Number of female members of international organizing committee/ total number of members of international organizing committee, in percentage : mean value is 16(2)% (it was 16(2)% in 2015), and varies between 0% and 50%, with 11 conferences where this value is below 10%, 17 conferences between 10% and 20% and 7 conferences with value larger than 20%.

The female participation in conferences or in organizing/advisory committees did not change from 2015 to 2016. Maybe there is some improvement, about 4.5 (3)% in the female invited speaker proportion. This makes sense since the organizers do not directly influence the female participation at conferences, while the proportion of female speakers is a clear decision of the organizers.

Several conferences present female participation and speaker proportions higher than 20% with organizing/advisory committees with proportion lower than 20%. Examples: (22%, 27%, 18%) “28<sup>th</sup> Texas symposium on Relativistic Astrophysics” (C-19) in Switzerland; (26% 36% 15%) “14<sup>th</sup> Conference on Integral Methods in Science and Engineering” (C-18) Italy; (15% 40% 6%) “International Nuclear Physics Conference (C12) Australia. Counter examples are, where even a high number of women in the organization do not yield a large number of female speakers: (13% 13% 50%) SUSY2016 (C-11) Australia.

Example with the lowest numbers: “International Conference on precision Physics of Simple Atomic Systems (PSAS) Workshop on the determination of the fundamental constants” (C2): 4.9%, 2%, 7%, realized in Israel. Examples with highest numbers: “Contemporary Science Education and Challenges in the Present Society: Perspectives in Physics Teaching and Learning” (C-14) Brazil (40%, 63%, 32%).

### **Year 2017 (from October 2016-October 2017)**

Unfortunately, only 9 conferences have sent their report. Our statistic is very low but even so, we analyzed the data.

Number of women attendees/ total number of attendees, in percentage: mean value is 13 (2) %.

Number of female invited speakers/total number of invited speakers, in percentage : mean value is 17 (3) % .

Number of female members of international organizing committee/ total number of members of international organizing committee, in percentage : mean value is 21(4)%.

Below we show Table 1 with all conferences in the same year, irrespective the field of physics or geographic region.

Year	Number of conferences analyzed	percentage of female participants	percentage of female invited speakers	percentage of female members of organizing committee/ IAC
2015	21	18 (2) %	14,5 (2) %	16 (2) %
2016	35	19 (1.5) %	19 (3) %	16 (2) %
2017	9	13,3 (1,7) %	17 (3) %	21 (4) %
Average	65	17 (1) %	17 (2) %	18 (2) %

Table 1. Percentage of female participation, in number of attendees, in invited speakers and in members of organizing/advisory committees. Irrespective of field or geographic region, the time evolution is under focus.

**Conclusion about time evolution:** The average value of the three percentages about female participation in 65 conferences is very similar. We do

not observe significant improvement with time, taking into account the standard deviation of the average values.

Continent	percentage of female participants	percentage of female invited speakers	percentage of female members of organizing committee/ IAC	number of conferences	Year
Europe	17.5 (1) %	15 (2) %	13 (2) %	31	2015-2017
Asia Pacific	16 (2) %	16 (3) %	18 (4) %	12	2015-2017
Africa	17 (4) %	17 (5) %	17 (6) %	7	2015-2017
North America	15 (2) %	23 (3) %	22 (3) %	8	2015-2017
Latin-America	25 (6) %	32 (11) %	23 (7) %	4	2015-2017

Table 2. The same three variables on female participation in conferences is shown as a function of continent or geographic region, taking into account all fields of physics represented by the commissions and summing about the triennium 2015-2017.

**Conclusion about geographical dependence:** The details of the analysis are in Annex 1, an Excel spreadsheet with data on all conferences. The continents are listed in increasing female participation.

Several interesting features appear from this separation, following continents:

1. Europe has far more IUPAP supported conferences than any other continent (we included in Europe conferences in Russia, in Dubna, Moscow or St Petersburg, and in Israel). Maybe the reason for USA not having more conferences is due to the somewhat restrictive entrance laws in USA.
2. North America has better numbers for female participation than Europe, even taking into account the error bars, which are quite large. The numbers of Europe were surprisingly low, where many small conferences with very low female participation and no females in the organization influenced the final values.
3. The numbers of Asia – Pacific region and Africa are similar to those of Europe within the error bars.
4. A clear correlation between average number of female members in organizing committees and average number of female invited speakers can be observed in all continents. This is an interesting but not surprising result of the statistics on many conferences.
5. Latin America has the best values, but very low statistics, only four conferences in 3 years. One of them, organized by C14, Physics Education, has very large female participation, which could rise the numbers. Looking in Annex 1, 2 of the other three conferences also present good numbers. This feature merits to be better studied, but it is linked to the fact that in Latin America we have more female staff at universities, more models to follow.

6. With Annex 1, the dependence with the field or with the size of the conference can easily be done. By absolute lack of time, I could not do it, but I have the intention to deepen this study later on.

**Final conclusions:** The final averages of female participation in physics conferences supported by IUPAP in all fields and in all regions of the world in the triennium 2015-2017 are on Table 1. The numbers are between 17 and 18 %, which are not very good values. Even with all effort IUPAP is doing, we are still very far from the gender equality. More effort should be done and there the Commission chairs can do a good job.