

Report on the activities of the C3 Commission

October 2021- October 2024

The C3 Commission on Statistical Physics has the mandate to promote the exchange of information and views among the members of the international scientific community in the general field of Statistical Physics and applications to related fields.

Year 2021

In 2021 the C3 Commission mainly supported the organization of the IUPAP StatPhys meeting, StatPhys 28, which was held in Tokyo (<https://statphys28.org>), initially planned in August 2022, The C3 governance participated to the Steering Committee which held online meeting every month to monitor the continuously changing conditions and adapt the organization to the upcoming constraints. During 2021, in particular, the C3 governance, together with the steering committee, first updated the International Advisory Committee, which has the role to recommend the invited and plenary speakers for the StatPhys conference. The C3 also discussed the schedule, the venue occupation, the website structure and the list of topics included in the program. More importantly, the C3 governance, together with the steering committee, selected the plenary and invited speakers among the suggestions of the International Advisory Committee. In both cases, the percentage of women was about 30%.

Beside the organization of Statphys, starting October 2021 the new C3 started his Commission duties. A novel gmail account was open to facilitate communication and online meetings were held to discuss a number of issues that were raised by the experience of the previous Commission. In particular, the C3 revised the call for Boltzmann medal nominations and made it public on the Statphys website and through the mailing list of statistical physics managed by Ludovic Berthier in early November 2021 (a reminder was also sent in early January 2022). Several C3 Members posted the call on the website of their national Physics Society. Following the same procedure, the C3 also posted the call for nominations for Early Career Scientist Awards. Furthermore, the C3 discussed in several online zoom meetings the revision of the voting procedure to select the Boltzmann medal and Early Career Scientist Award recipients. The whole voting committees for both awards were informed by the novel voting procedures adopted by the C3.

Finally, the C3 Commission sent a letter of congratulations to Prof. Giorgio Parisi for his Nobel Prize in Physics in 2021.

Year 2022

During the year 2022 the C3 continuously monitored the organization of StatPhys28. At the end of January 2022, the Steering Committee and the C3 governance had a meeting chaired by Prof. Tetsuo Deguchi to discuss the organization problems due to the Covid pandemic. At that time in Japan a 14 days quarantine was established for people entering the country and visas for foreigners were suspended indefinitely. The steering committee discussed two possible options: To hold the conference in August 2022, as originally planned, but fully online; or else to move the conference to August 2023, when hopefully most restrictions could be relaxed and it would be possible to hold the Conference in person or at least hybrid. After discussing the possible outcomes in the different scenarios and in the attempt to maximize the chances for a successful meeting, the steering committee decided to postpone StatPhys28 to August 7-11, 2023, as a hybrid meeting. The plenary and invited

speakers, already selected, were asked to confirm their availability for 2023. The call for abstracts to select contributed talks and posters was then postponed. The selection process for the Boltzmann Medal and the Early Career Scientist Award was continued according to the accepted schedule. The Boltzmann medals and the Early Career Scientist Prizes were announced, as expected, in 2022 but the official ceremony was held in 2023. Concerning the organization of StatPhys, additional steering committee meetings were held to define the members of the Topic committees, the different registration fees and the time schedule.

In January 2022 the C3 Commission analyzed the nominations received for the Boltzmann Medal 2022. According to the novel procedure decided by the C3, at the beginning of the month of February 2022 two rounds of voting took place online, via google forms. At the end of February, the two awardees were announced to the community, Prof. Deepak Dhar and Prof. John J. Hopfield. Their short bios were published on the StatPhys28 and IUPAP websites. The medals were ordered to the Rideau Company in Canada and shipped directly to Prof. Tetsuo Deguchi in Tokyo. The IUPAP paid directly to the Company the medal costs.

Next, the C3 worked on the selection of the Early Career Scientist Awards 2022. Once the call was closed and nominations received, during the month of March a zoom meeting was held to discuss the candidate profiles and, according to the procedure decided by the C3, two rounds of voting took place via google forms. In the month of April, the three awardees were announced to the community, Dr. Kyogo Kawaguchi, Dr. Camille Scalliet and Dr. Suraj Shankar. Their short bios were published on the StatPhys28 and IUPAP websites.

Finally, because of the exceptional situation due to the Covid pandemic, the C3 decided to maintain the regular schedule for the following conferences, namely planning to hold StatPhys29 in 2025. At the end of January 2022, the C3 made public the call for bids to select the organizer of StatPhys29 in 2025. The C3 received two bids, from Prof. Panos Argyrakis for the city of Thessaloniki in Greece and from Prof. Stefano Ruffo for the city of Florence in Italy. The interview was held online July 27th, 2022 and, after extensive discussions, the C3 assigned to Prof. Stefano Ruffo the charge to organize StatPhys29 in Florence (Italy).

At the end of January 2022, the Chair of C3 did participate to the IUPAP Executive Council and Commission Chair meeting held online. Moreover, in early February the C3 chose the new C3 associate Members: Suliana Manley, Enzo Marinari, Robert Stamps and Damian Zannette.

During the month of February, the C3 Chair was asked by the IUPAP President designate to give an advice concerning the future of the Working Group on Soft Matter (WG15), together with Masaki Sasai, Chair of the C6 Commission. After an online meeting, the Chairs of C3 and C6 decided to involve in the decision also Mei-Yin Chou, Chair of the C20, because of the strong scientific overlap with WG15. After a joint discussion, the three Chairs decided to consult the Members of their Commissions. Based on the feedback from the three Commissions, a final advice was submitted to IUPAP at the end of May, recommending that WG15 should continue as a working group.

In the month of July, the Chair participated to the IUPAP Executive Council and Commission Chair meeting held in Trieste, and to the IUPAP General Assembly and Centenary Symposium. Moreover, the C3 Chair was involved in the organizing committee of the Workshop "Physics for Sustainable Development" (19 Sept. 2022, Rome), planned as Guest Event of NanoInnovation 2022, organized by Guglielmo Fortunato and supported by IUPAP. Furthermore, the C3 congratulated the 2022 ICTP Dirac Medal Winners: Joel Liebowitz, Elliot Lieb and David Ruelle.

Year 2023

In 2023, the C3 Commission held several online steering committee meetings for the organization of StatPhys 28 in Tokyo. In particular, the steering committee organized a memorial session to celebrate eminent Boltzmann medalists who passed away in the previous three years: Bernie Alder, Kurt Binder, Michael Fisher and Kyozi Kawasaki.

The StatPhys Conference took place from August 7 to August 11 2023 in hybrid mode, with more than 1000 participants in presence and about 100 online. During the Conference the Awards Ceremony took place, assigning the Boltzmann medals and the early Career Scientist Awards 2022.

In Tokyo the C3 Commission had also the traditional meeting where the new governance and the updated composition of the Commission for the term 2024-27 were decided. The proposed designated Chair was Janos Kertesz, who served as Secretary in the present term, and his name was communicated to IUPAP. Moreover, The C3 proposed Cristina Marchetti as vice-Chair and Chao Tang as Secretary for the following term. Furthermore, several proposals were gathered for future Members to replace the ones ending their term. The C3 was also updated by Prof. Stefano Ruffo about the progress in the organization of StatPhys29 in Florence (Italy), which will take place in July 2025. Moreover, the C3 gave positive feedback to the proposal for an inter-commission symposium on the future of the Earth, proposed by C19. Finally, after extensive discussions, with a majority vote the C3 decided to nominate John Hopfield for the Wolf prize. The nomination was also supported by the C6 Commission.

The Chair of C3 was a member of the evaluating Committee for the Interdisciplinary Early Career Prize that IUPAP launched for the first time in 2023. The Committee held an online meeting in July to discuss the evaluation criteria and the nominees to discard since they did not comply with the call rules. The C3 Commission discussed the retained nominations during the meeting in Tokyo. Finally, in an online meeting held in September the Committee assigned the awards to Evelyn Tang and Stefano Martiniani,

The C3 Commission agreed to endorse the 8th International Soft Matter Conference, which was planned to take place in Raleigh (USA) in August 2024. In the month of October, the C3 Chair attended online the IUPAP Executive Council and Commission chairs meeting, as well as the General Assembly 2023, held in Geneva. Finally, the Chair, the Secretary and some members of the C3 were chosen to be part of the Steering Committee for StatPhys29, taking place in Florence in 2025.

Year 2024

The first meeting of the Steering Committee for StatPhys29 was held online in January and discussed the present status of the organization, the update of the Topics and of the International Advisory Committee. The following meeting was held in presence in Florence at the end of May. In this meeting, the Steering Committee selected the plenary and invited speakers for StatPhys29. The list of speakers (<https://statphys29.org/>) includes about 50% women plenary speakers and 35% women invited speakers.

The C3 Commission agreed to endorse the workshop “Seeking Unifying Principles in Equilibrium and Driven Materials” to be held in Anacapri (Italy) in October 2024. Concerning the request of a Liaison Person for the organization of an Inter-Commission Symposium to be held 12-13 October 2024 in Hainan, China, to

discuss Physics research for a Sustainable Planet, the C3 selected Prof. Chao Tang, who has strong scientific interests in the field. Prof. Tang gladly accepted. Finally, as requested by IUPAP, the Chair submitted the recommendations for the new Commission members and governance on the website in the month of August.

Lucilla de Arcangelis

Prof. Lucilla de Arcangelis

Chair of the C3 Commission