

Newsletter Interview

PARTICLE COLLIDERS ACCELERATORS AND LIGHT SOURCES: THE IPAC CONFERENCE LANDS IN VENICE



Interview with the coordinators of the local organizing committee Giovanni Bisoffi, researcher at INFN Legnaro National Laboratories, and Alessandro Fabris, researcher at Elettra Sincrotrone Trieste,

The main international event for the worldwide particle

accelerator research field and industry arrives in Venice: the 14th International Particle Accelerator Conference (IPAC'23) will be held from 7 to 12 May 2023 at the Venice Convention Centre. Over 1400 researchers coming from all over the world will join the conference, organized by the accelerator communities in Europe, Americas and Asia and hosted this year by INFN Istituto Nazionale di Fisica Nucleare and Elettra Sincrotrone Trieste. With over 2000 contributions, the conference will focus on highlights in cutting-edge accelerator research and development, new accelerator projects and updates in the main accelerator facilities across the globe. The conference will also host 80 industry exhibitors: it will hence be the perfect chance to strengthen the collaboration within the research institutions' and industries' world. We talked about IPAC'23 with the chairs of the Local Organising Committee, Giovanni Bisoffi, researcher at INFN Legnaro National Laboratories, and Alessandro Fabris, researcher at Elettra Sincrotrone Trieste.

IPAC is a series of conferences that has a long tradition. What does IPAC mean for the worldwide accelerator community?

IPAC in a way means “home” for many accelerator experts from all over the world. On top of the many smaller and more specialized workshops or conferences that each of us attends, IPAC gives us all a chance to get a broader update on advances in our field, at large. Many of us attend the IPAC conferences regularly: IPAC is the chance to meet many friends from all over the world, new colleagues and all the major industrial partners we collaborate with for the construction of our projects. It is also a chance to discover new projects and new developments. Even if sometimes these projects do not seem directly and immediately connected to our daily work, they may trigger new ideas.

IPAC is organized by the accelerator communities in Europe, Americas and Asia and has now come to its 14th edition, the first one to be hosted in Italy. What does it mean for Italy and for INFN and Elettra to host such a conference?

IPAC is an extraordinary opportunity of exchange for both science and industry. It lands in Europe every three years and the competition to be awarded to host it is extremely demanding. We thought it was time for Italy to be able to host one and we succeeded. We are proud of serving the international communities by putting Italy at the center of the scene, to highlight the role that Italian science, and INFN and Elettra, play in the particle accelerator world. Elettra and INFN have a long-term tradition in the design, construction and operation of many different particle accelerators for electrons and hadrons, of the linear and circular types, for both institutional and private users: they have expertise in most of the themes presented at the conference. Moreover, both Elettra and INFN promote a synergic approach between public and private partners to develop new accelerators for fundamental research. So, we believe they are the best hosts for the IPAC conference in Italy.

What do you expect from this edition of the conference? And what are the main topics the conference will deal with?

The main themes of IPAC are particle accelerators, fundamental tools for basic and applied research. During the conference, also the role of particle accelerators in our daily life will be highlighted. They are used for instance in medicine, in security and in the energy sector. Moreover, the cutting-edge technologies, developed and implemented to build and improve particle accelerators, have an outstanding economic impact and are exceptional drivers for technologies advancement and new progress. This year, we expect more than 1400 experts, researchers and technologists, who study and design different types of particle accelerators for various applications: from particle physics to synchrotron and neutron light sources, to applications in the medical and industrial fields. IPAC23 will offer the most complete review on new ideas, new results, new technologies in the exciting fields of particle accelerator science and technology. In addition, this year we are offering a very rich student program and - for the first time in the IPAC conferences - we have a two-day tutorial program which provides them an overview on the different types of accelerators and technologies.

IPAC has a strong link with the industry world. Why is it important for the research community to strengthen its links with industry?

Cross collaboration with industry is an instrumental key for advancing the field of particle accelerators, and the participation of industry is a key asset that this conference offers to the participants. We cannot build our accelerators without the technological skills and production capabilities of the companies we are collaborating with. On the other hand, our demands trigger new technology advancements and business opportunities for our partners. It is a real win-win scenario. All the new technologies presented at IPAC conferences aim at being adopted by industry one day: this is the most important certification of their validity and success. Once in the hand of industry, new ideas often spread out all over the world. The two worlds of research and industry have always looked at each other with interest. While we bring the freshness of innovative ideas, industry often masters organizational skills and the professional quality of a product.

IPAC'23 is a huge event with thousands of participants coming from all over the world. What was the biggest challenge you had to face during the organization of the conference?

INFN and Elettra are joining their efforts to organize IPAC23 in Venice, a city that is conveniently located between the laboratories of INFN in Legnaro and Elettra in Trieste. We are both proud to open our doors to participants for post conference tours. To organize a huge event like an IPAC requires a harmonious collaboration by many colleagues. And the whole local organizing team, despite the many difficulties encountered, is ending up being a real team of friends at the end of such a challenging endeavor. If we look back to 2018 when we competed to organize the conference in Italy, the world passed through a pandemic, we are having a war in Europe, we are suffering of high inflation after over 40 years. All this has posed significant challenges and worries. Today, looking to the number of registrants, the highest in the history of IPAC, coming from 38 countries, we are happy to see that people are looking forward to meeting and interacting in an international and friendly environment. This is very rewarding for all of those who have worked intensely over the past months on the organization of this major event.

A more personal question, what are you very much looking forward to listening to?

[**Giovanni Bisoffi**] To the several emerging ideas that will revolutionize the way in which particle accelerators are built. By making them more efficient and shorter, with much higher accelerating fields and innovative superconducting magnets, accelerators will be easier to afford, in capital cost and in the energy they require. Therefore, they will become not only more effective but also more sustainable. I believe we owe this progress to our ultimate stakeholders, the women and men funding us and who will get the advantages of the progress of this branch of knowledge.

[**Alessandro Fabris**] I am looking forward to listening to the major developments in our field: the most powerful machines which are fundamental to advance our knowledge in fundamental physics and the light sources and FEL, Free Electron Lasers, which are advanced tools for the study of materials and life science. But also, the machines developed for health and medicine which are offering new techniques to address important needs in everyday life.

I personally also look forward to listening to the talks and to speaking, during the poster session, with the new members of our community. Their enthusiasm and their fresh look at the developments of particle accelerator are very stimulating.

We are also hosting an Equal Opportunity session this year, a fundamental theme in every field and in our everyday life. So, I am very interested to follow the presentations and discussion during this event.

What do you hope participants will bring home from the conference?

The scientific and industrial programs showcase the forefront of our field in 2023. We surely hope that, by the way the event is organized, all participants will find the most favorable conditions to make their exchange fruitful and long-lasting: by sipping coffee in the coffee breaks, at the poster sessions, and while enjoying the social program. We believe that IPAC will be remembered with sweet memories by participants for a long time to come.

