

Report of the International Scientific Committee on the P2IO LabEx – 9/12/2022

Present: Maria José Garcia Borge, Fernando Ferroni (remotely), Christine Joblin, Karl-Heinz Kampert, Paul Lecoq, Chiara Mariotti, Paraskevas Sphicas, Mikhail Shaposhnikov

Apologies: Barbara Erazmus, Alvaro Giménez, Andrew Hutton, Lucia Popescu

The International Scientific Committee (ISC) met on 30 Nov-2 Dec 2022 to evaluate the status and progress of the P2IO LabEx since its last review in October 2021. There were several presentations from current projects (two flagship and nine emerging projects) as well as from LabEx members, including early career scientists (three postdoctoral associates and three PhD students). The ISC also had a dedicated meeting and discussion with some of the directors of the Laboratories within the P2IO LabEx.

As in 2021, the ISC is impressed by the presentations and the enthusiasm of the speakers, as well as by the numerous results that have been obtained by the various P2IO projects. The ISC notes that the P2IO has continued to be an important and effective ecosystem for nurturing a spirit of cooperation across the participating laboratories and scientists. Moreover, it has been offering significant opportunities to early career researchers, promoting excellence in research, and recognizing exceptional performance, e.g., through the established PhD prizes; The committee appreciated the excellent presentations made by the two most recent winners and commends them for their work.

The crucial issues related to the transition from the LabEx to the new organization that is set to commence in 2023 through the Graduate School of Physics (GSP) were addressed in dedicated presentations by the Director and the Deputy Director for Research of the GSP, as well as by the Directors of the P2I and Astro axes that cover the thematic area of the current P2IO LabEx.

A list of tentative conclusions was presented orally at a dedicated meeting on the last day of the meeting. These are presented and expanded upon in the current report, which has been approved by all members of the ISC.

1) Management and Organization of current operations of the P2IO LabEx

As in 2021, the ISC has found the overall governance of the P2IO LabEx to have been appropriate and effective for carrying out the important initiatives of the P2IO. The advantages of the P2IO LabEx scheme, namely the provision of a common platform for the creation and support of inter-laboratory cooperative projects and the ability to fund, even at a relatively modest rate, new initiatives that can lead to excellent science and the development of cutting-edge instrumentation and technology, continue to be evident this year. We congratulate the P2IO management for their successful engagement with the participating laboratories and their corresponding communities, which has been leading to excellent results.

The ISC commends the P2IO LabEx particularly for its “Flagship projects” initiative; it has been, and remains to be, an excellent idea that has been providing both a new avenue for collaboration among the individual P2IO institutes and crucial funding for the development and demonstration of initiatives with budgets close to 1M€, allowing also for adequate time for the selected projects to grow. Beyond the success of two of the Flagship projects that ran in 2015-2020 in obtaining funding from the TGIR, which was already pointed out in the 2021 report of the ISC, the two ongoing Flagship projects, BSM-Nu and Gluodynamics, continue to deliver connections between theory and experiment, resulting in important new results.

Equally important, though on a smaller scale, have been the “emerging projects”, which have led to a host of significant developments that cover the full range from novel instrumentation and all the way to particle theory.

The richness of the initiatives and the success of the P2IO projects have been achieved largely thanks to the availability of dynamic and motivated postdocs and PhD students. The ISC recognizes the strong added value of the P2IO LabEx in offering PhD students a rich multidisciplinary environment. As in 2021, we continue to applaud the initiative to distribute two PhD awards per year, promoting excellence and generating visibility for both the institutions and the graduates themselves. The ISC is also pleased to see that the LabEx attracts talented PhDs and postdocs from worldwide.

2) Expiration of the P2IO LabEx and the transition to the Graduate School of Physics

The present LabEx structure will cease in Dec 2022 and its current funding will be taken over by the University of Paris-Saclay. Naturally, this presents both challenges and opportunities for the Graduate School of Physics, whose enlarged scope will include that of the current P2IO Labex.

Challenges:

The planned reduction of the funds allotted to the GSP, when compared to the total funding that was available to the LabExs that are being merged into the GSP, is naturally a major cause for concern. The P2IO LabEx has been a very successful scheme for supporting coordinated efforts in basic science; if anything, the ISC would have expected that, given that the primary aim of the University of Paris-Saclay is to increase its international visibility and recognition, the GSP would have continued to be supported at least at the same level as in the past decade.

The ISC is particularly concerned by the fact that not all the institutions that are currently participating in the P2IO LabEx are going to be part of the enlarged University of Paris-Saclay conglomerate. In particular, the two laboratories from Ecole Polytechnique, which have contributed significantly to the scientific output of the P2IO, will no longer be included in the subsequent organization. The non-inclusion of these two laboratories in the future research efforts of the Graduate School of Physics signifies a major loss to the overall scientific and technical expertise currently available within the P2IO LabEx.

The ISC notes that the future P2I and Astro axes, which up to now were within the same P2IO LabEx, will now be independent structures within the GSP. The impression of the ISC is that the details of how the overall synchronization between the axes will be implemented have not been discussed sufficiently with all current actors in the P2IO. In addition, the risk of additional administrative and organizational overheads arising from the introduction of another layer of management is now present.

An additional upcoming challenge is to ensure continuity in the support of postdoctoral researchers. These postdocs have played a crucial role in securing the success of the projects and in fostering collaborations among the institutions in the P2IO LabEx.

Recommendations:

1. Maintain the presently ongoing projects and ensure their timely and successful completion within the next two years.

2. The GSP should continue its current efforts to ensure a smooth transition from the LabEx scheme to the new structure, with the primary objective of maintaining and enhancing the momentum created by the P2IO.
3. The GSP should make every effort to implement a relatively light-weight management scheme similar to that of the P2IO LabEx. A significant factor in the success of the P2IO has been the flexibility of its governance; every effort should be made to ensure that this flexibility be maintained.
4. The GSP should make every effort to continue the “flagship” project initiative. These projects have been a major tool in establishing stronger links between the P2IO laboratories, leading to major scientific results and developments, some of which have been successful in securing significant external funding. The ISC notes that these flagship projects are very likely to further increase the visibility of the University of Paris-Saclay.
5. The laboratories within the P2I and Astro Axes should investigate the possibility of contributing funds from their individual programs towards maintaining flagship projects, in the same federated spirit as the P2IO LabEx.
6. The GSP should maintain the level of funding of individual projects at approximately the current level, i.e., the available funding should not be divided among a large number of small projects. The overall spreading of the available funding should be judicious and in line with the quality of the proposed projects.
7. Given the impending decrease in the total funding allocated to current P2IO activities, it is imperative that the GSP and the P2I and Astro axes intensify their efforts to secure new funding at both the national and international levels. Every potential vehicle for securing new funding, e.g., the EU Cofund program, should be actively and intensively investigated.
8. It is of paramount importance that the GSP maintains programs for hiring motivated post-docs.
9. The P2I and Astro axes, and the GSP at large, should continue promoting the training of students in an interdisciplinary environment.

Lastly, the ISC finds that much of the international reputation and recognition of the University of Paris-Saclay stems from its exemplary research in basic science, as made evident by, e.g. the very high international rankings of the Mathematics and Physics Departments. Given that the primary goal of the merging of several institutions of higher education and research into a single university, the University of Paris-Saclay, is to maintain and to further increase this worldwide impact, it will be crucial that the overall level of investment in basic science be maintained. Any reduction in this investment, potentially in the interest of a more balanced allocation of funds across the university, must be compensated by initiatives to preserve the ability of P2I and Astro researchers of the Graduate School of Physics of the University of Paris-Saclay to deliver excellent science.