African School of Fundamental Physics and Applications

Summary Report on the ASP2024 Site Visit

May 1, 2024

Abdelslam Arhrib[1], Kétévi A. Assamagan[2], Driss Benchekroun[3], Abdelkarim Boskri[4], Mohamed Chabab[4], Lalla Btissam Drissi[5], Farida Fassi[5], Yassine Hassouni[5], Abdeslam Hoummada[3], Tarik Khalla[4], Mounia Laassiri[6], Rajaa Sebihi[5], Horst Severini[7], Herman B. White Jr.[8]

[1]AbdelMalek Saadi University Morocco, [2]BNL USA, [3]Université Hassan II-Casablanca Morocco, [4]Cadi Ayyad University Morocco, [5]Mohammed V University Morocco,[6]Helsinki Institute of Physics Finland, [7]University of Oklahoma USA, [8]Fermilab USA

The authors of this document are the "ASP2024 Site Visit Delegation" which comprises members of the International Advisory Committee (IAC), International Organizing Committee (IOC) and Local Organizing Committee (LOC).

African School of Fundamental Physics and Applications

Introduction

The African School of Physics (ASP) [1] is organized periodically in different African countries identified through competitive bids. Morocco was selected to host the 8th edition of ASP, ASP2024, at Cadi Ayyad University in Marrakesh. ASP2024 is planned on two different dates. From April 15 to 19, 2024, a physics outreach event is planned in the Marrakesh region to motivate high school learners, encouraging them to develop and maintain an interest in physics. This outreach event consists of physics experimentation and hands-on exercises with the participation of up to two thousand high school learners. A second set of activities is planned for July 7-21, 2024: these include intensive physics lectures, tutorials, and experimentation for university students with a minimum of three-year university education in physics. About eighty to a hundred, mostly African students are selected to attend the in-person event, and more students to participate online. In addition, a one-week training session, on July 8-12, 2024, is being organized for high school teachers from Morocco, to support teachers' growth in their planning and delivery of physics instructions. About eighty high school teachers, selected nationally by the local authorities, are expected to receive this training. The third activity planned on July 13, 2024, is the ASP forum—a platform to engage African policymakers and discuss the alignment of the ASP program with the strategic priorities of African countries in physics education and research. Additional high school outreach activities are foreseen in the week of July 15-19, 2024.



African School of Fundamental Physics and Applications

ASP2024 will be a collection of parallel activities, with many participants, including high school learners and teachers, university students, lecturers, organizers, and policymakers. Planning and logistical support are the key to a successful ASP2024. Several months before the start of an edition of ASP, the IOC plans a site visit to the host country. The objectives of the site visit are to discuss the organizational, logistical, and financial aspects with the LOC, identify where improvements should be made in the logistics and develop a concerted planning toward a successful ASP. After several discussions between the IOC and LOC, both parties agreed to schedule the site visit for February 12-16, 2024. The choice of the date resulted from several considerations, namely the availability of LOC and IOC members, and of local government and university officials. The international delegation consisted of Senior Scientist Emeritus Dr. Herman B. White Jr. (Fermilab), from the IAC, Senior Physicist Dr. Kétévi A. Assamagan (Brookhaven National Laboratory) and Early Career Physicist Dr. Mounia Laassiri (Helsinki Institute of Physics), both from the IOC. Several members of the LOC, led by Prof. Farida Fassi (Mohammed V University) and Prof. Mohamed Chabab (Cadi Ayyad University) joined the international delegation in all engagements with the relevant authorities. The places visited are Rabat and Marrakesh:

- Rabat on February 12-14, for meetings and discussions with central government and university officials as well leaders of major national research institutes, to inform and motivate a national support for ASP2024.
- Marrakesh (the venue of ASP2024) on February 14-16, for a review of the logistics and infrastructure associated with lodging accommodations,

university facilities (lecture and experimental halls, educational equipment, and computing), and meetings with university and regional officials.

At Rabat

We started the site visit in Rabat, where, on February 12-13, 2024, we met with the Director of CNRST (Centre National de la Recherche Scientifique et Technique), the President and the Dean of Science of Mohammed V University, the President of the Higher Council of Education and Scientific Research, cabinet members of Ministère de l'Enseignement Supérieur, de la Recherche Scientifique et de l'Innovation and Ministère de l'Education Nationale, du Preé-sslaire et des Sports, the Perpetual Secretary of the Hassan II Academy and their support staff. In these engagements, we discussed and secured support (in-kind and financial) for all the planned activities at ASP2024. More details can be found in Refs. [2, 3, 4].

On February 14, 2024, we attended the PhD thesis defense of Zainab Soumaimi, an alumna of ASP2021 whose PhD work on the ATLAS Experiment was co-supervised by Prof. Farida Fassi and Dr. Kétévi A. Assamagan. Zainab Soumaimi was one of the ASP alumni that went to BNL in 2022-2023 as part of the short-term visit for research.

Journey from Rabat to Marrakesh

After the thesis defense proceedings, the site visit delegation traveled to Marrakesh, where on February 15-16, 2024, further meetings and a review of the logistics were carried out.

At Marrakesh

Specifically, the delegation met with the Dean of the Faculty of Science at Cadi Ayyad University, visited the faculty premises, including amphitheater and seminar rooms and computing room to use for ASP2024. From Marrakesh, the delegation traveled to Ben Guerir to visit Mohammed VI Polytechnic University with the objective of including them into the LOC. Further meetings were carried out with the Vice-President of Cadi Ayyad University and the Director of the Regional Academy of Education (AREF-Marrakech-Safi)), responsible for the high school learners' affairs. From the officials of Cadi Ayyad University, we received in-kind support for the usage of the university facilities, whereas with the Regional Academy of Education, we discussed and received support for the high school outreach program, both the scientific and logistical aspects. Figures 1-5 show some highlights of the site visit. With the ASP2024 site visit completed successfully with the support of the Moroccan authorities, we continue in earnest the preparation of ASP2024, with the first upcoming event being the high school learners' program of April 15-19, 2024.



Figure 1 caption: ASP2024 Site Visit meeting at the CNRST in Rabat on February 12, 2024. **Figure 1 credits**: CNRST.



Figure 2 caption: ASP2024 Site Visit meeting with Meeting with the President of the Higher Council of Education and Scientific Research. **Figure 2 credits:** The Higher Council of Education.



Picture 3 caption: During the PhD thesis defense of Zainab Soumaimi on February 14, 2024, in Rabat. **Picture 3 credits:** Prof. Farida Fassi.



Picture 4 caption: At Cadi Ayyad University, in Marrakesh, during the site visit, on February 15, 2024. **Picture 4 credits:** Prof. Mohamed Chabab.



Picture 5 caption: During the meeting with the officials of the Regional Academy of Education, on February 16, 2024, in Marrakesh. **Picture 5 credits:** Prof. Mohamed Chabab.

Review of software and computing logistics, April 23-27, 2024

A detailed review of the computing and software requirements for the events in July 2024 was carried out during the period of April 23-27, 2024, at Cadi Ayyad University in Marrakesh. Horst Severini and Abdelkarim Boskri spent that week looking at computer lab space and installing some test machines in preparation for the school. We installed one test machine with AlmaLinux 9 and one with LinuxMint 21 as Operating System, and then installed the software that was requested from lecturers for the school. We installed root, Geant4, thonny,

minicom, ampy, rshell, and Astra, and all of them installed and ran fine on both test machines. We have remote access to these machines, so we can install other software if lecturers request it.

Once all the software has been tested by the lecturers, we will decide on which of the two test machines we will use for the school. The local site admins are more familiar with LinuxMint (a Debian/Ubuntu clone), so we will most likely choose that one unless there is software we can only get to work on Alma 9. Then Abdelkarim will clone that test machine and install it on the 30 - 35 desktops in the computing lab, so that we will have those available for the computing lectures and tutorials in July.

Action items

The Moroccan government, physics education and research authorities requested a detailed description of the needs for the various activities and the associated budgets so that they may decide on their support. For the high school outreach in April, the regional education authorities (AREF) asked for the details of the scientific program. At the time of writing, the IOC and the LOC are preparing this information, to be submitted to the relevant authorities before the beginning of Ramadan on March 10, 2024.

References

[1] https://www.africanschoolofphysics.org/

[2] https://www.cnrst.ma/fr/component/k2/item/714-visite-d-une-delegation-de-l-african-school-of-fundamental-physics-and-applications-asp

[3]
http://www.fsr.ac.ma/content/african-school-fundamental-physics-and-applications

[4]
https://www.csefrs.ma/le-conseil-superieur-de-leducation-de-la-formation-et-de-la-recherche-scientifique-recoit-lecole-africaine-de-physique-fondamentale-et-appliquee/?lang=fr