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2024 meeting of the Steering Committee of the Dark Matter Lab

Composition of the Steering Committee (SC):

German Members:

- DESY: Beate Heinemann
- GSI: Yvonne Leifels
- KIT: Marc Weber (represented by Klaus Eitel)
- External: Klaus Desch

French Members:

- Christelle Roy
- Patrice Verdier (chair)
- Vincent Poireau
- Laurent Vacavant

DMLab Directors: Thomas Schoerner (DESY) and Dirk Zerwas (CNRS)

Agenda of the meeting: <https://indico.in2p3.fr/event/33633>

The SC of DMLab met in Paris the 16th of October 2024.

The previous meeting was in 2022 no meeting in 2023).

The Directors of DMLab presented a summary of the activities and projects of the lab for the last two years (DMLab activities started already in 2021-2022, but DMLab was officially created on January 1, 2023). The implementation of the work program is progressing well and 16 projects have been started so far on Dark Matter searches (MadMax and Darwin), particle detectors, computing and machine learning techniques, theoretical physics, and accelerator developments. From the initial work program, the SC noted that:

- projects on multi-messenger astro-particle physics, especially gravitational waves physics, have not yet started. Discussions are in progress to start this topic in 2025.
- laser plasma acceleration could be further developed (two project are indeed already ongoing).

DMLab is fulfilling its role of supporting and strengthening visits at DESY, KIT and GSI: the French director of DMLab, Dirk Zerwas, is a long-term visitor at DESY since December 2023, and approximately 30 short term visits (of typically 1 week) have been organized so far. The SC indicated that there could be more long-term visits to support projects which necessitate the presence of French scientists during strategic phases. There is also an interest from German scientists to visit French labs: the SC discussed examples of such visit program (CNRS-Max-Planck Institute collaboration extended to Helmholtz, program at KIT to send students in France) and suggested that this should be further developed and supported.

DMLab is delivering high-quality scientific results. The leveraging effect is effective with 2 PhD thesis grants obtained (CNRS-MITI), 2 ANR-DFG projects accepted in 2023 (CALO5D) and 2024 (HALOX) and a successful procopé24+ proposal. The Directors are also developing outreach activities to promote German-French collaborations within DMLab (embassy visit in 2024, Science et Avenir in 2023).

At the end of the meeting, DMLab Directors presented thoughts on an input for the ESPPU 2026 regarding a Dark Matter network. The SC asked the Directors to further investigate this idea, starting with contacting APPEC, while remaining in the area of dark matter searches which are connected to developments of accelerator and their technologies as well as the related detector developments.

In conclusion, the SC congratulates the DMLab for its very successful first two years of existence and encourages the continued strengthening of German-French activities and projects according to this collaboration scheme. The next meeting will take place in 2025 during the DMLab annual meeting.