

Charge to the CEPC International Advisory Committee

October, 2022

The Circular Electron Positron Collider (CEPC+SppC) Study Group, currently hosted by the Institute of High Energy Physics of the Chinese Academy of Sciences, has been developing the technical design of the CEPC accelerator and the detector system, continues to refine their designs to enhance the performance, and is carrying out the R&D program, the development of its software, and the site preparation. In the meantime, the Chinese Academy of Sciences is evaluating CEPC as a candidate project for major particle physics facility for which the construction may begin as early as sometime during the 15th 5-year period (2026-2031).

The present goals of the CEPC Study Group remain to be the completion of the necessary R&D work and the Technical Design Report, the demonstration of the validity of critical subsystems, the enhancement of the organization and global collaboration

The CEPC International Advisory Committee shall advise on all related matters for the CEPC project, in particular on the following aspects:

1. The plan, the progress and the scope of the CEPC accelerator TDR. General guidance on the TDR will be a high priority. For the IAC committee's reference, a recent CEPC International Accelerator Review Committee (IARC) report is available at https://indico.ihep.ac.cn/event/17996/attachments/64057/74612/2022_First_CEPC_IA_RC_Meeting_Report.pdf
2. The CEPC Study Group and the host lab, IHEP are aiming at beginning the construction of the CEPC during the 15th 5-year plan, likely with a start date around 2027-8. To do this the CEPC should be in a "ready state" for the government review for approval by 2024-5. Advice on the feasible plan to converge the activities towards that "ready state" will be critical.
3. The CEPC Study Group has been developing a new CEPC detector system concept, beyond those concepts outlined in the CEPC CDR, by utilizing advanced and emerging state-of-art technologies under R&D, to maximize future physics output at CEPC. Guidance on the specific design and the technologies will be appreciated.

The committee is invited to give suggestions on any aspect of CEPC beyond the above items.

It is requested that a committee report responding to this charge be delivered to the IHEP director Yifang Wang by December 1, 2022.

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